

# STATE DOCUMENTS

# 27TH BIENNIAL REPORT

**MONTANA BOARD  
OF HEALTH**

JULY 1, 1952-  
JUNE 30, 1954

VITAL STATISTICS  
FOR 1952-1953

"IT WAS IN 1881 THE WHITE POPULATION OF CUSTER COUNTY SAW ITS FIRST EPIDEMIC OF SMALLPOX. . . . THE COST OF THE EPIDEMIC TO THE COUNTY WAS IN THE NEIGHBORHOOD OF FIFTY THOUSAND DOL- LARS."

L. C. BRUNING, M.D., MILES CITY  
CUSTER COUNTY HEALTH OFFICER  
NOVEMBER, 1904

~~SECRET~~  
VETERANS ADMINISTRATION  
FORT HARRISON, MONTANA

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Helena, Montana 59601



THIS REPORT IS PRESENTED AS REQUIRED THAT:

"THE STATE BOARD OF HEALTH SHALL . . . AT EACH SESSION OF THE LEGISLATURE, SUBMIT THROUGH THE GOVERNOR A FULL REPORT OF THEIR INVESTIGATIONS, AND SUCH SUGGESTIONS AND RECOMMENDATIONS AS THEY MAY DEEM PROPER."

—REVISED MONTANA CODES. 1947. 69-105.

APR 20 2004

COVER PICTURE

**MONTANA POLIO PIONEER**—In Missoula, Mineral, Park and Gallatin counties 3,130 children in the first three grades of school took part in the field testing of the new polio vaccine in the spring of 1954. Results of the testing is expected to be known before the 1955 polio season. Dr. Frank J. Pickett, Bozeman, is pictured administering the first shot in the Montana program to six-year-old Elaine Bolhis at Manhattan Christian School.



(Photo by BOZEMAN DAILY CHRONICLE)



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JULY 1, 1952-JUNE 30, 1954

**MONTANA  
STATE BOARD OF HEALTH  
HELENA, MONT.**

WITH THE BELIEF THAT GOOD HEALTH IS NOT, AND CAN NEVER BE, AUTOMATIC; THAT MONTANA'S PUBLIC HEALTH IS NOT STATIC, BUT MUST BE CONTINUING AND CUMULATIVE; THAT THE DEGREE OF PUBLIC HEALTH WE ENJOY TODAY IS THE PRODUCT OF WORK STARTED IN MARCH OF 1901; THAT WHAT WE ACCOMPLISH TOMORROW MUST BE BASED ON WHAT IS DONE TODAY . . .



**BIENNIAL REPORT: 1952-1954  
VITAL STATISTICS: 1952-1953**

THIS REPORT MARKS  
THE START OF THE  
FIFTY-FOURTH YEAR  
OF PUBLIC HEALTH  
IN MONTANA,  
DESIGNED TO GUARD  
AND PROTECT  
MONTANA'S HEALTH.

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picture  
credits

John Forseen, THE MISSOULIAN, page 65;  
Leo D. Harris, THE LIVINGSTON ENTER-  
PRISE, page 125; Robert Jacobson, THE  
BOZEMAN DAILY CHRONICLE, pages 55  
& 56; Ed Healy, THE MISSOULIAN, page  
107; Edwin Gremmer, Missoula, page 58.



STATE OF MONTANA  
STATE BOARD OF HEALTH  
HELENA, MONTANA

G. D. CARLYLE THOMPSON, M.D.  
EXECUTIVE OFFICER AND SECRETARY

December 2, 1954

Honorable J. Hugo Aronson  
Governor of Montana  
State Capitol  
Helena, Montana

Dear Governor Aronson:

I herewith submit the Twenty-Seventh Biennial Report of the Montana State Board of Health.

Your interest and cooperation in the conduction of affairs relating to public health are very greatly appreciated.

Sincerely yours,

*G. Carlyle Thompson*

G. D. Carlyle Thompson, M.D.  
Executive Officer

GDCT/bh

# **STAFF**

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## **27TH BIENNIAL REPORT: STATE BOARD OF HEALTH**

### **STAFF OF MONTANA'S STATE BOARD OF HEALTH**

(JULY 1, 1952 - JUNE 30, 1954)

#### **ADMINISTRATION**

G. D. CARLYLE THOMPSON, M.D., M.P.H.,  
EXECUTIVE OFFICER  
ELMER F. NEWELL  
ADMINISTRATIVE OFFICER (PRIOR TO ILLNESS, NOV. 1952)  
RICHARD J. MARQUARDT,  
ADMINISTRATIVE OFFICER (APPOINTED FEB. 1953)  
L. L. BENEPE,  
REGISTRAR

#### **CHILD HEALTH**

PAUL R. ENSIGN, M.D., M.P.H.,  
DIRECTOR  
WALTER H. HAGEN, M.D.,  
DIRECTOR OF CEREBRAL PALSY CENTER, BILLINGS  
BETTY S. GILSON, M.D.,  
DIRECTOR OF RHEUMATIC FEVER CENTER, GREAT FALLS

#### **DENTAL HEALTH**

FRANCIS I. LIVINGSTON, D.D.S., M.S.P.H.,  
DIRECTOR (RESIGNED SEPT. 1953)  
ALLEN T. WILLIS, D.D.S., M.P.H.,  
DIRECTOR (APPOINTED JUNE 1954)

#### **DISEASE CONTROL**

DIRECTOR (VACANT), G. D. CARLYLE THOMPSON, M.D., M.P.H.  
ACTING DIRECTOR  
W. F. KIMMELL, M.D.,  
DIRECTOR OF TUBERCULOSIS CONTROL AND MONTANA CHEST X-RAY SURVEY  
(RESIGNED JUNE 30, 1953)  
L. S. MCLEAN, M.D., M.P.H.,  
ACTING DIRECTOR OF TUBERCULOSIS CONTROL AND DIRECTOR, MONTANA  
CHEST X-RAY SURVEY, BEGINNING JULY 1, 1953

#### **ENVIRONMENTAL SANITATION**

C. W. BRINCK, DIRECTOR

#### **HEALTH EDUCATION**

K. ELIZABETH ANDERSON, DIRECTOR

#### **HOSPITAL FACILITIES**

ROBERT J. MUNZENRIDER, DIRECTOR

#### **LOCAL HEALTH SERVICES**

L. S. MCLEAN, M.D., M.P.H., DIRECTOR

#### **PUBLIC HEALTH NURSING**

WAVA L. DIXON, DIRECTOR

#### **BACTERIOLOGICAL LABORATORY**

EDITH KUHNS, DIRECTOR

# BOARD MEMBERS

## 27TH BIENNIAL REPORT: STATE BOARD OF HEALTH



BOARD MEETING—DR. BERG, MRS. HOLTZ, MRS. JOHNSON, MR. LOSLEBEN, DR. BEAL, DR. MORRISON, DR. THOMPSON AND DR. THOMPSON'S SECRETARY, MRS. HARRIS.

### MONTANA STATE BOARD OF HEALTH\* (JULY 1, 1952 — JUNE 30, 1954)

E. S. MURPHY, M.D., PRESIDENT (RESIGNED JULY 1953)	- - -	MISSOULA
DAVID T. BERG, M.D., PRESIDENT (APPOINTED FEBRUARY 1953)	- - -	HELENA
MRS. CHARLOTTE HOLTZ, VICE PRESIDENT	- - - -	FLOWEREE
W. L. BEAL, D.D.S.	- - - - -	ANACONDA
B. C. FARRAND, M.D.	- - - - -	JORDAN
MISS MARY MC NELIS (TERM ENDED FEBRUARY 1953)	- - - -	BUTTE
MRS. HELEN C. JOHNSON (APPOINTED FEBRUARY 1953)	- - - -	BOZEMAN
R. J. MC GREGOR, M.D. (TERM ENDED FEBRUARY 1953)	- - -	GREAT FALLS
GEORGE J. (BUD) GROVER (TERM ENDED JUNE 1953)	- - -	DEER LODGE
R. J. LOSELBEN (APPOINTED JUNE 1953)	- - - -	MALTA
WILLIAM F. MORRISON, M.D. (APPOINTED JULY 1953)	- - - -	MISSOULA

G. D. CARLYLE THOMPSON, M.D., SECRETARY-EXECUTIVE OFFICER - HELENA

\*CREATED MARCH 15, 1901. THE REVISED CODES OF MONTANA, 1947 (TITLE 69, CHAPTER 101) STATES: "THERE IS HEREBY CREATED 'THE STATE BOARD OF HEALTH OF THE STATE OF MONTANA' . . . WHICH SHALL CONSIST OF SEVEN (7) MEMBERS, TO BE APPOINTED BY THE GOVERNOR, THREE (3) OF WHOM SHALL HAVE THE DEGREE OF DOCTOR OF MEDICINE, ONE (1) OF WHOM SHALL HAVE THE DEGREE OF DOCTOR OF DENTAL SURGERY, AND THREE (3) OF WHOM SHALL BE LAY PERSONS, EACH OF WHOM HAS DEMONSTRATED INTELLIGENT AND ACTIVE INTEREST IN THE FIELD OF PUBLIC HEALTH IN MONTANA. FOR PURPOSES OF THIS ACT 'Lay Person' IS HEREBY DEFINED AS ANY PERSON WHO DOES NOT HOLD THE DEGREE OF DOCTOR OF DENTAL SURGERY OR DOCTOR OF MEDICINE."

## SUMMARY

### 27th BIENNIAL REPORT; STATE BOARD OF HEALTH

This biennium saw the continuation of efforts to evaluate and revamp the Board's services and internal operation, initiated in the last biennium. However, where key staff vacancies have persisted, the desired degree of effectiveness and improvement within the divisions has not been possible. To a considerable extent, too, budget problems which resulted in the need for adjustments in staff duties, handicapped the program to improve services.

Faced with a restricted budget in this biennium, the state health department staff and services were reduced July 1, 1953. The effect of this reduction was temporarily and partially offset by the contribution of private agency funds to the Board. In adjusting to budget and staff limitations, the Board established fees for bacteriological and chemical testing of water samples from private water supplies; increased municipal water supply inspection and testing charges for the first time since 1917; placed the responsibility for inspection of food-handling establishments with local health officers; adapted more efficient vital statistics and laboratory reporting forms. Other similar adjustments were accomplished throughout the biennium.

For many years the major share of Montana's public health budget was based on federal funds. At one time, more than 70% of the State Board of Health budget was derived from federal funds. But federal funds available to Montana have declined and state funds have not been correspondingly increased. In fiscal 1954—for the first time in at least 15 years—only half the state public health budget was derived from federal funds. Further reductions in available federal funds can be expected. To adjust to this condition, the state must assume more of the financial responsibility for Montana's public health program. Otherwise, services and staff must be further reduced. The state's major financial dependence for its basic public health services for many years, and even at this time, is clearly tied to financial resources beyond its control.

Without disregarding or minimizing the importances of the federal-state partnership in public health work, strengthening the state's financial share is needed to enhance its financial independence for its basic public health services.

Montanans continued to enjoy, generally, good health in this two-year period. While the number of births recorded in these two years reached an all-time high, the state's maternal and infant death rates dropped to record lows. For the 14th and 15th consecutive years no smallpox deaths were reported; only one typhoid death was reported for two years. But Montana's good health record should be better. Smallpox, diphtheria, and typhoid fever cases, all preventable, have occurred too frequently and infectious hepatitis has greatly increased in the biennium.

Poliomyelitis (infantile paralysis) has been the principal communicable disease problem. In this biennium, the 2nd and 3rd highest incidence years in our history were recorded, exceeded only by 1932. But the polio vaccine used in field trials in four Montana counties in the spring of 1954 holds out encouraging promise in the fight against this crippling disease. Results of the field trials are expected in the spring of 1955. Gamma globulin distribution to Montana physicians was initiated in 1953, through the State Board of Health, for use in the prevention of polio paralysis. The GG distribution programs were extended in 1954 through the county health officers. Two county-wide gamma globulin immunization programs for children under 15 years of age were carried out in August, 1953.

Professional staff vacancies continue to plague the public health work of the state health department. At the end of this report period, several major professional staff positions remained vacant, including a pediatric consultant in the division of Child Health Services; a physician director and an industrial hygiene engineer for the division of Disease Control; and public health engineers in the division of Environmental Sanitation. Every effort is being made to fill these

## S U M M A R Y

### 27th BIENNIAL REPORT; STATE BOARD OF HEALTH

positions; in spite of the poor competitive position the Board of Health is placed in with the low salary structure for these positions.

Emphasis in the field of sanitation was on water supplies and sewage disposal. Responsibility for sanitation inspection of food-handling establishments has been delegated to local health officers, as provided under Montana law. Staff of the division of Environmental Sanitation continues to assist local health officials in this field when there is a need or a request. Increasing urban populations in the state are placing greater pressure on long-outdated sewage disposal operations in many areas. Following the approach of education rather than dictation, engineers on the staff are working to aid local communities solve their problems with an eye to future needs. Very often the sewage disposal problem of one community involves the water supply limitations of another town.

In the field of health education, the health education activities of all divisions of the state health department have been coordinated in the division of Health Education to avoid duplication, to achieve more efficient use of staff, materials and available funds, in doing a more effective job.

Revised booklets of meat market regulations, tourist court standards, food and drug regulations and laws were prepared in this report period. Other new and revised materials included a dietetic handbook for hospitals and nursing homes; regulations for hospitals and nursing homes; and revised communicable disease regulations.

A special study of "Alcoholism in Montana" was conducted in response to House Joint Resolution No. 5 of the last legislature. Findings and recommendations of this study are to be prepared and presented in a report to the 1955 session of the state legislature.

Improved local health services are reflected in this two-year period with the organization of two new local public health districts: Montana Public Health District No. 3, composed of Missoula and Mineral counties; and Montana Public Health District No. 2, composed of Lake and Sanders counties. At the end of this biennial, eight of Montana's 56 counties were served by full-time local health departments: Missoula, Mineral, Lake, Sanders, Rosebud, Big Horn, Gallatin, and Cascade counties.

For ten months of this report period the position of director of Dental Health was vacant. By the end of the biennium the position was filled. Two more Montana communities, Bozeman and Fort Belknap, have instituted fluoridation of their community water supplies to reduce dental decay. This makes four Montana towns now using controlled fluoridation as a dental health measure. Several others are considering this public health measure and can be expected to start the operation in the near future.

Since the start of the intensified Chest X-ray Survey program in November of 1952, 175,992 Montanans have had chest X-rays in this screening program. This figure represents 73.8% of the X-rayable population (12 years and older) in the area covered by the survey. Compared with results of previous surveys in these counties, the current intensified program is X-raying approximately twice as many Montanans. Added effort and cost of such a program is being repaid many times over in this sharp increase in the number of people X-rayed. The intensified survey program will cover the remaining 35 counties, and complete the coverage of the state, by September of 1955.

In this biennium the Montana Division of the American Cancer Society joined the Montana Tuberculosis Association and the State Board of Health in the co-operative sponsorship and financing of the Chest X-ray Survey program.

For a more complete report on the activities of the Montana State Board of Health, the reader is invited to devote his attention to the detailed reports, tables, illustrations and statistics presented elsewhere in this volume.

## CENTRAL ADMINISTRATION

**G. D. CARLYLE THOMPSON, M.D., Executive Officer**

**RICHARD J. MARQUARDT, Administrative Officer**

**L. L. BENEPE, Registrar**

The activities of the central administration staff were dominated during the biennium by the financial and administrative problems created by the reduction of Federal Grant-in-Aid funds. This federal reduction had two aspects: (1) a reduction of federal funds carried over from allotments of previous years, and, (2) a reduction in new federal allotments.

Reduction of federal allotments first occurred in 1951 and 1952, but these were not felt in Montana because of the funds carried over from earlier allotments. Interpreting the results of the 1952 elections as a mandate from the people to reduce Federal expenditures, the eighty-third Congress made further reductions in Grant-in-Aid funds to the states for health programs. The assumption was that essential services would be maintained by local and state governments.

Most of the reduction in carried-over federal funds was known to the state by January, 1953, but allotment reductions made by the eighty-third Congress could not be known at that time. Unfortunately, by the time the full extent of the aid reduction became known, the Montana state legislature had adjourned.

The financial problems of the Montana State Board of Health were not caused by a reduction of state appropriations. As a matter of fact, the legislature, which met early in 1953, increased the Board of Health appropriation by about 15%. However, to fully offset the then known reduction in federal carry-over allotments, an increase of 45% would have been required. The extent of the reduction of available federal funds can be appreciated by the following comparisons. In fiscal year 1953, federal funds in the amount of \$451,487.42 were budgeted. In fiscal year 1954, federal funds in the amount of \$337,924.49 were budgeted, a reduction of \$113,562.93 from 1953.

The trend of less federal financial participation in Montana's public health program is continued into fiscal year 1955, when not more than \$288,000 is anticipated from federal sources. This is a reduction of about

\$50,000 from 1954, making a total reduction for the two years of about \$278,000.

The State Board of Health, in order to meet its financial problems in 1954, considered discontinuing whole programs or divisions. One of them was its major contribution to the intensified Chest X-Ray Survey, newest program of the Board of Health. Another was financial aid to counties. However, after careful consideration, it was decided that (a) each division of the Board would be required to share in the reduction and (b) available funds would be used for services which at the time were considered most important to Montana health.

Funds were provided to continue the intensified survey for approximately six months of fiscal year 1954. Arrangements were subsequently made to receive reimbursement assistance from the Montana Tuberculosis Association and the Montana Division of the American Cancer Society in order that the survey could be continued the balance of the fiscal year. Aid to counties was continued without reduction in the total amount, although for each county there was a 5% reduction.

The general over-all budget reduction was about 12%. With the exception of the Division of Public Health Education and the Vital Statistics section, position reductions were made in all units of the Board of Health. Reductions in other budgetary items, such as travel and supplies, were made in all division budgets. In addition, duties were shifted to different divisions in order to best utilize funds and staff.

TABLE NO. I  
Summary of State Board of Health Expenditures and Encumbrances  
By Object—Fiscal Years 1953 and 1954  
State, Federal and Private

OBJECT—	July 1, 1952- June 30, 1953	July 1, 1953- June 30, 1954	Total
Salaries	\$365,741.32	\$333,849.63	\$ 699,590.95
Travel	51,524.68	48,564.52	100,089.20
P. E. R. S.	10,627.57	9,547.78	20,175.35
Office Expense	61,385.38	42,353.40	103,738.78
Scientific Supplies	18,460.37	29,380.50	47,840.87
Merit System	7,308.24	6,449.64	13,757.88
Training	7,634.58	13,245.33	20,879.91
Drs. Fees, Clinics and X-rays	40,334.01	33,397.19	73,731.20
Hospitalization	47,289.16	66,693.19	113,982.35
Appliances	6,158.85	4,620.18	10,779.03
Miscellaneous	4,386.99	1,309.92	5,696.91
Aid to Local Areas	48,204.76	47,908.69	96,113.45
	\$669,055.91*	\$637,319.97**	\$1,306,375.88

\*Encumbrances \$18,654.79

\*\*Encumbrances \$16,319.17

MONTANA STATE BOARD OF HEALTH  
Budgeted Full-time Positions  
Fiscal Years 1942 and 1947 - 1954

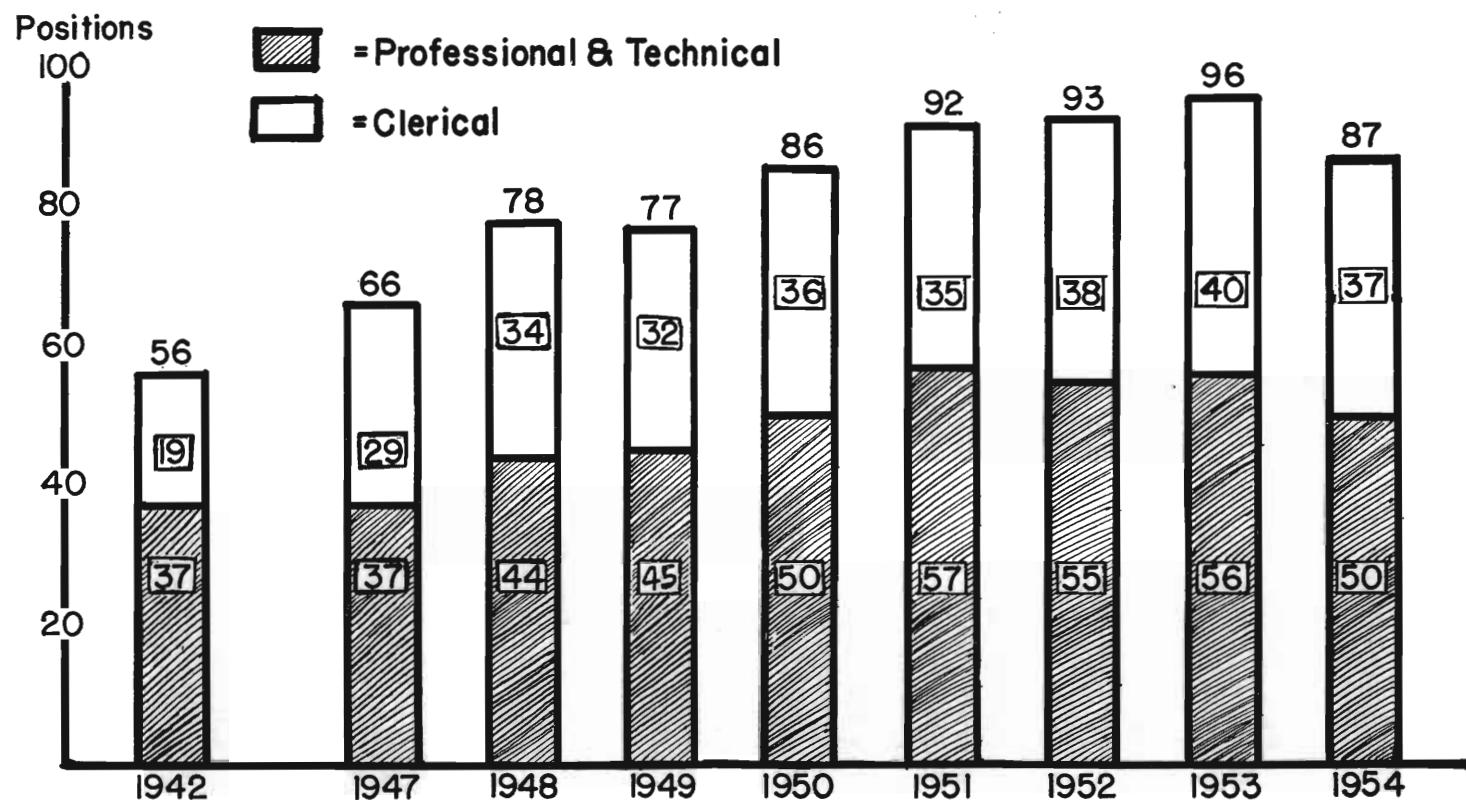


TABLE NO. IA

## Number of Budgeted Full-Time Positions

## Montana State Board of Health

Fiscal Years 1942 and 1947 Through 1954

	1941- 1942	1946- 1947	1947- 1948	1948- 1949	1949- 1950	1950- 1951	1951- 1952	1952- 1953	1953- 1954
State Professional and Technical -----	37	37	44	45	50	57	55	56	50
State Clerical -----	19	29	34	32	36	35	38	40	37
Total, State -----	56	66	78	77	86	92	93	96	87
Professional State Staff Assigned Locally -----	22	22	23	18	21	21	0*	0*	0*

\*Assignment of state staff to local areas discontinued July 1, 1951. Replaced by payment of funds to local areas for employment of staff by local authority.

**Office Space.** During the biennium the Board of Health was not required to request any additional office space. This was largely due to the fact that several staff positions remained vacant during the period. Some exchange of space among various divisions was carried out in order to bring units receiving direction from the same person into a more contiguous arrangement.

**Personnel.** Although the Board's compensation plan was obviously low for certain classifications, when compared to other states, the compensation plan was not changed during the biennium. As a result, serious recruiting problems were experienced in these classifications. It was impossible to employ a public health physician to fill the position of Director of the Division of Disease Control. The Industrial Hygienist and Pediatric Consultant (physician) positions also remained vacant. It has been possible only for short periods of time to maintain a full staff of therapists at the Cerebral Palsy Center in Billings.

Recruiting effort has been especially discouraging in connection with the Cerebral Palsy Center. Repeatedly, therapists who were interested in working at the Center were forced to decline our employment offers when they found positions elsewhere which paid salaries several thousands of dollars more per year.

The vacancy in the position of Director of the Division of Disease Control has affected all programs. The executive officer has acted in that capacity throughout the biennium, a situation which has not permitted him to give the desired supervision and evaluation to other programs.

Staff turnover in fiscal year 1953 was increased because of the required reductions in force. The rate for professional and technical personnel was 41% in 1953, compared to 28% in 1952. The rate for clerical personnel was 90%, compared to 42% in 1952. The rates during 1954

**TABLE NO. II**  
**Summary of State Board of Health Expenditures and Encumbrances, 1952-53 and 1953-54**

	July 1, 1952 to June 30, 1953			July 1, 1953 to June 30, 1954		
	State	Federal	Total	State	Federal	Total
ADMINISTRATION.....	(69,822.85)	(38,042.33)	(107,865.18)	(60,804.86)	(30,204.48)	(91,009.34)
General.....	53,263.74	20,699.94	73,963.68	45,318.51	20,399.13	65,717.64
Vital Statistics.....	16,559.11	2,399.57	18,958.68	15,486.35	3,355.71	18,842.06
Merit System.....		7,308.24	7,308.24		6,449.64	6,449.64
Training.....		7,634.58	7,634.58	Included in Program Totals		
DISEASE CONTROL.....	(39,528.79)	(59,726.55)	(99,255.34)	(59,081.02)†	(37,407.62)	(96,488.64)†
General.....	13,527.79	15,271.48	28,799.27	7,935.64	8,578.75	16,514.39
Chest X-ray Survey.....	25,327.21	44,054.11	69,381.32	51,373.09†	28,225.13	79,598.22†
Drugs and Biologics.....	673.79	400.96	1,074.75	227.71*	603.74	376.03
CHILD HEALTH SERVICES.....	(50,703.09)	(132,113.75)	(182,816.84)	(69,793.01)	(129,957.41)	(199,750.42)
Maternal and Child Health.....	4,223.40	27,046.36	31,269.76	17,265.77	17,106.70	34,372.47
Crippled Children.....	17,770.62	7,055.81	24,826.43	8,322.58	16,693.33	25,015.91
Clinics and Auxiliary Services.....	28,350.82	15,935.19	44,286.01	6,029.41	27,251.94	33,281.35
Hospitalization.....	358.25	46,895.91	47,254.16	17,977.19	48,700.18	66,677.37
C. P. Center.....		26,347.88	26,347.88	19,253.40	11,945.62	31,199.02
Rheumatic Fever Center.....		8,832.60	8,832.60		4,597.92	4,597.92
Appliances.....	Included Above			944.66	3,661.72	4,606.38
PUBLIC HEALTH NURSING.....	( 1,960.00)	(16,223.80)	(18,183.80)	( 4,959.64)	(19,008.04)	(23,967.68)
HEALTH EDUCATION.....	(10,158.69)	(29,176.05)	(39,334.74)	(17,984.46)	(15,365.24)	(32,349.70)
General.....	10,158.69	29,176.05	39,334.74	12,957.12	14,336.38	27,293.50
Narcotics and Alcohol.....	Included in General			5,027.34	1,028.86	6,056.20
ENVIRONMENTAL SANITATION.....	(22,386.07)	(45,569.68)	(67,955.75)	(29,424.97)	(30,211.90)	(59,636.87)
BACTERIOLOGICAL LABORATORY.....	(30,784.73)	(23,437.39)	(54,222.12)	(23,353.53)‡	(24,771.70)	(48,125.23)‡
HOSPITAL FACILITIES.....	(20,315.60)	( 660.00)	(20,975.60)	(14,908.70)	( 2,081.68)	(16,990.38)
DENTAL HEALTH.....	( 5,898.98)	( 8,489.04)	(14,388.02)	( 874.50)	(11,307.27)	(12,181.77)
LOCAL HEALTH SERVICES.....	(31,241.89)	(32,816.63)	(64,058.52)	(31,335.69)	(24,484.25)	(55,819.94)
General.....	11,122.18	4,731.58	15,853.76	4,936.79	2,974.46	7,911.25
Aid to Local Areas.....	20,119.71	28,085.05	48,204.76	26,398.90	21,509.79	47,908.69
TOTAL.....	282,800.69	386,255.22	669,055.91	312,520.38†‡	324,799.59	637,319.97†‡

\*Red figure.

†Includes \$26,370.26 private funds.

‡Includes \$62.00 funds from water analysis fees.

Unpaid obligations included in above totals as follows:

1952-53: Administration, General, \$2,709.58; Vital Statistics, \$68.19; Disease Control, General, \$909.86; Chest X-ray Survey, \$977.60; Maternal and Child Health, \$1,462.00; Clinics and Auxiliary Services, \$5,420.00; Hospitalization, \$3,846.85; Cerebral Palsy Center, \$389.20; Appliances, \$680.00; Public Health Nursing, \$3.60; Health Education, General, \$181.85; Environmental Sanitation, \$479.30; Bacteriological Laboratory, \$1,526.76.

1953-54: Administration, General, \$207.42; Disease Control, General, \$464.06; Chest X-ray Survey, \$1,402.52; Maternal and Child Health, \$2,906.94; Clinics and Auxiliary Services, \$6,143.75; Hospitalization, \$607.62; Cerebral Palsy Center, \$1,423.52; Public Health Nursing, \$107.89; Health Education, \$467.43; Environmental Sanitation, \$59.00; Bacteriological Laboratory, \$1,557.69; Dental Health, \$971.33.

**TABLE NO. III**  
**Montana State Board of Health**  
**Summary of Budgets and Expenditures for Fiscal Years 1942 and 1947 to 1955 Inclusive**

Year (1)	Code (2)	Total (3)	State (4)	Federal (5)	P.H.S. (6)	M.C.H. (7)	C.C. (8)
1955	Bud.	(640,844.27)	(355,564.23)	(285,280.04)	( 93,600.00)	( 90,339.25)	(101,340.79)
1954	Act.	637,319.97*	312,520.38*	324,799.59	109,466.52	97,900.56	117,432.51
	Bud.	(695,047.22**)	(357,122.73**)	(337,924.49)	(109,590.19)	(103,924.96)	(124,409.34)
1953	Act.	669,055.91	282,800.69	386,255.22	155,483.19	118,621.79	112,150.24
	Bud.	(736,632.42)	(285,145.00)	(451,487.42)	(167,624.93)	(137,007.73)	(146,854.76)
1952	Act.	599,927.00	266,124.00	333,803.00	159,435.00	75,327.00	99,041.00
	Bud.	(699,739.00)	(282,645.00)	(417,553.00)	(184,929.00)	(114,905.00)	(117,719.00)
1951	Act.	557,387.00	278,919.00	278,468.00	137,963.00	71,965.00	68,540.00
	Bud.	(666,857.00)	(292,186.00)	(374,671.00)	(177,137.00)	(107,703.00)	( 89,831.00)
1950	Act.	491,182.00	220,702.00	270,480.00	126,907.00	70,919.00	72,654.00
	Bud.	(599,988.00)	(249,045.00)	(350,943.00)	(162,431.00)	(111,996.00)	( 76,516.00)
1949	Act.	481,142.00	219,261.00	261,881.00	109,978.00	73,723.00	78,180.00
	Bud.	(553,731.00)	(232,682.00)	(321,051.00)	(136,005.00)	( 92,280.00)	( 92,766.00)
1948	Act.	441,353.00	163,399.00	277,954.00	122,593.00	71,571.00	83,790.00
	Bud.	(553,287.00)	(203,575.00)	(349,712.00)	(152,186.00)	(106,465.00)	( 91,061.00)
1947	Act.	375,145.00	177,507.00	197,638.00	88,154.00	59,430.00	50,053.00
	Bud.	(472,746.00)	(203,402.00)	(269,344.00)	(128,999.00)	( 83,253.00)	( 57,092.00)
1942	Act.	296,606.00	104,745.00	191,861.00	91,999.00	61,670.00	38,192.00
	Bud.	(343,188.00)	(113,400.00)	(229,788.00)	(110,145.00)	( 76,167.00)	( 43,476.00)

Note: Col. 5 is a total of Cols. 6, 7, and 8.  
Col. 3 is a total of Cols. 4 and 5.

Code:

Bud.—Budgeted Amount.

Act.—Actual expenditures.

P.H.S.—United States Public Health Service.

M.C.H.—United States Children's Bureau, Maternal & Child Health.

C.C.—United States Children's Bureau, Crippled Children.

\*Includes \$286,150.12 from state appropriations, balance from private agencies revenue and fees.

\*\*Includes \$315,625.00 from state appropriations, balance from private agencies revenue and fees.

1953 and 1954 Act. figures include unpaid obligations as follows:

Year	Federal	P.H.S.	M.C.H.	C.C.
1954	16,319.17	3,536.19	4,608.09	8,174.89
1955	18,654.79	6,671.29	767.45	11,216.05

**TABLE NO. IV**  
**Montana State Board of Health**  
**Summary of Budgets and Expenditures of Federal Funds for Fiscal Years 1942, and 1947 to 1955, Inc.**  
And Showing Sources of Funds as Indicated by Column Headings

Year (1)	Code (2)	Total Federal (3)	General (4)	Hospital (5)	W.P. (6)	V.D. (7)	T.B. (8)	Cancer (9)	Cancer Special (10)	Heart (11)	MCH-A (12)	MCH-B (13)	CC-A (14)	CC-B (15)
1955	Bud.	(285,280.04)	(51,000.00)	1,121.68	2,409.65	1,666.65	(18,900.00)	(12,000.00)	-----	(11,700.00)	(64,445.25)	(25,894.00)	(67,192.79)	(34,148.00)
1954	Act.	324,799.59	52,922.66	1,121.68	2,409.65	1,666.65	19,088.76	12,900.57	5,910.79	13,445.76	71,371.63	26,528.93	83,643.89	33,788.62
	Bud.	(337,924.49)	(52,922.66)	(1,245.00)	(2,410.00)	(1,666.65)	(19,088.76)	(12,900.57)	(5,910.79)	(13,445.76)	(77,396.03)	(26,528.93)	(90,581.34)	(33,828.00)
1953	Act.	386,255.22	68,949.67	660.00	4,630.00	16,048.38	22,180.52	17,245.43	12,055.21	13,713.98	68,996.24	49,625.55	44,740.42	67,409.82
	Bud.	(451,487.42)	(68,949.67)	(1,905.06)	(7,039.65)	(17,709.62)	(22,181.19)	(17,290.00)	(17,966.00)	(14,583.74)	(87,381.27)	(49,626.46)	(79,444.76)	(67,410.00)
1952	Act.	321,849.00	70,812.00	3,297.00	7,262.00	18,030.00	23,863.00	16,271.00	-----	11,792.00	46,155.00	27,472.00	38,947.00	57,948.00
	Bud.	(417,553.00)	(79,891.00)	(5,202.00)	(14,302.00)	(19,072.00)	(30,806.00)	(18,412.00)	-----	(17,244.00)	(85,358.00)	(29,547.00)	(57,120.00)	(60,599.00)
1951	Act.	278,468.00	64,965.00	1,448.00	5,217.00	19,347.00	18,510.00	20,995.00	-----	7,480.00	47,145.00	24,820.00	22,683.00	45,856.00
	Bud.	(374,671.00)	(74,152.00)	(4,500.00)	(11,019.00)	(20,388.00)	(25,452.00)	(22,757.00)	-----	(18,868.00)	(80,805.00)	(26,898.00)	(37,990.00)	(51,841.00)
1950	Act.	270,480.00	61,024.00	3,027.00	7,700.00	25,471.00	20,779.00	5,821.00	-----	3,085.00	47,744.00	23,175.00	38,443.00	34,211.00
	Bud.	(350,943.00)	(69,162.00)	(3,000.00)	(9,619.00)	(27,083.00)	(21,678.00)	(18,466.00)	-----	(13,423.00)	(88,820.00)	(23,176.00)	(38,866.00)	(37,650.00)
1949	Act.	261,881.00	56,563.00	7.00	-----	29,583.00	20,613.00	6,211.00	-----	-----	53,468.00	20,255.00	40,888.00	37,292.00
	Bud.	(321,051.00)	(65,396.00)	(3,240.00)	-----	(30,280.00)	(23,230.00)	(13,859.00)	-----	-----	(65,172.00)	(27,108.00)	(41,964.00)	(50,802.00)
1948	Act.	277,954.00	53,666.00	315.00	-----	28,632.00	34,643.00	5,336.00	-----	-----	41,451.00	30,120.00	42,024.00	41,766.00
	Bud.	(349,712.00)	(64,479.00)	(7,500.00)	-----	(30,343.00)	(36,577.00)	(13,287.00)	-----	-----	(67,207.00)	(39,258.00)	(42,058.00)	(49,003.00)
1947	Act.	197,638.00	47,446.00	4,798.00	-----	18,858.00	13,819.00	3,233.00	-----	-----	32,110.00	27,320.00	29,956.00	20,097.00
	Bud.	(269,344.00)	(58,627.00)	(5,545.00)	-----	(29,488.00)	(21,819.00)	(13,520.00)	-----	-----	(33,595.00)	(49,658.00)	(30,000.00)	(27,092.00)
1942	Act.	191,861.00	74,928.00	-----	-----	17,071.00	-----	-----	-----	-----	35,197.00	26,473.00	32,047.00	6,145.00
	Bud.	(229,788.00)	(88,403.00)	-----	-----	(19,835.00)	-----	-----	-----	-----	(38,709.00)	(37,458.00)	(37,331.00)	(6,145.00)

Note: Col. 4 through 11 are United States Public Health Service Funds;  
Col. 12 through 15 are United States Children's Bureau Funds.

Code:

Bud.—Budgeted amount.  
Act.—Actual expenditures.  
T.B.—Tuberculosis.  
W.P.—Water pollution.  
V.D.—Venereal disease.  
MCH-A—Maternal and child health, Fund A.  
MCH-B—Maternal and child health, Fund B.  
CC-A—Crippled children, Fund A.  
CC-B—Crippled children, Fund B.  
Hospital—Administration of hospital construction.  
Actual expenditures for 1953 and 1954 include unpaid obligations as of the close of the fiscal year of \$18,654.79 in 1953 and \$16,319.17 in 1954.

Unused portions of budgeted funds in Columns 4, 8, 9, 11, 13 and 15 lapse at end of each year (June 30) and are lost to the state.

No allotments of funds in Column 5 have been made since 1947; these funds, not subject to lapsing, have been extended so far as possible.

No federal appropriation was made after 1952 for the funds in Column 6; these funds are not subject to lapsing, the funds budgeted after 1952 being carried over from 1951 and 1952 allotments.

No federal appropriation was made for 1954 for the funds in Column 7; unused balances in the state on June 30, 1953, were not lapsed and were expended in 1954.

Column 10 represents a research grant which was depleted on Dec. 31, 1953. Funds in Columns 12 and 14 lapse after the 3rd year following allotment; since July of 1952 it has been required that these Federal funds be paid to the state treasury before the end of the year of allotment. These funds require dollar-for-dollar matching by the state. The quarterly payments to the state are controlled by the rate of expenditure in the state. When Congress amended the Federal Act in 1952, Montana lost \$83,000 in U. S. Children's Bureau Funds because of inability to utilize them and have them paid into the state treasury before the federal legislation was changed. The basic grant in 1953 for Column 12 was \$64,597 and for Column 14 was \$61,272. The basic grant in 1954 for Column 12 was \$59,011, in 1955 is \$58,363. The basic grant in 1954 for Column 14 was \$55,877, in 1955 is \$55,769.

were 49% for professional and technical, and to 70% for clerical personnel. Most of the turnover in professional and technical personnel was confined to X-ray technicians employed on the Chest X-ray Survey program.

Late in the biennium, the Administrative Officer, in his role as personnel director, cooperated with the Division of Health Education to initiate a program to orient new personnel. It is expected that this program will save division directors considerable time in acquainting new employees with Board of Health organization, functions, programs, policies, and personnel procedures.

In 1953, the Board revised the length of the probationary period which new employees are required to complete before receiving "permanent" status. Most state and local personnel regulations provide for a six-month probationary period. The Board of Health followed this national pattern until 1953, when it was decided that some classifications involved work of such responsibility and ability that it was not possible to adequately judge an employee's service in such a short period of time. The present plan provides for a specified probationary period for each classification. The shortest period is six months; the longest, 18 months.

The personnel administration workload of the Board was significantly increased by the requirements of the State Personnel Commission. The entire classification plan was rewritten according to the specifications of the Commission as to format and content. In addition, job descriptions were written by all employees and reviewed by the Executive Officer and Administrative Officer.

**Office Procedure.** During the biennium, the responsibility for mail handling was placed in one position. Previously division secretaries were obliged to call at the Executive Office for their mail, to carry out-going mail to the mail room, and to carry inter-office communications from one office to the other. This fractionized functional arrangement caused much clerical time to be spent in walking between offices.

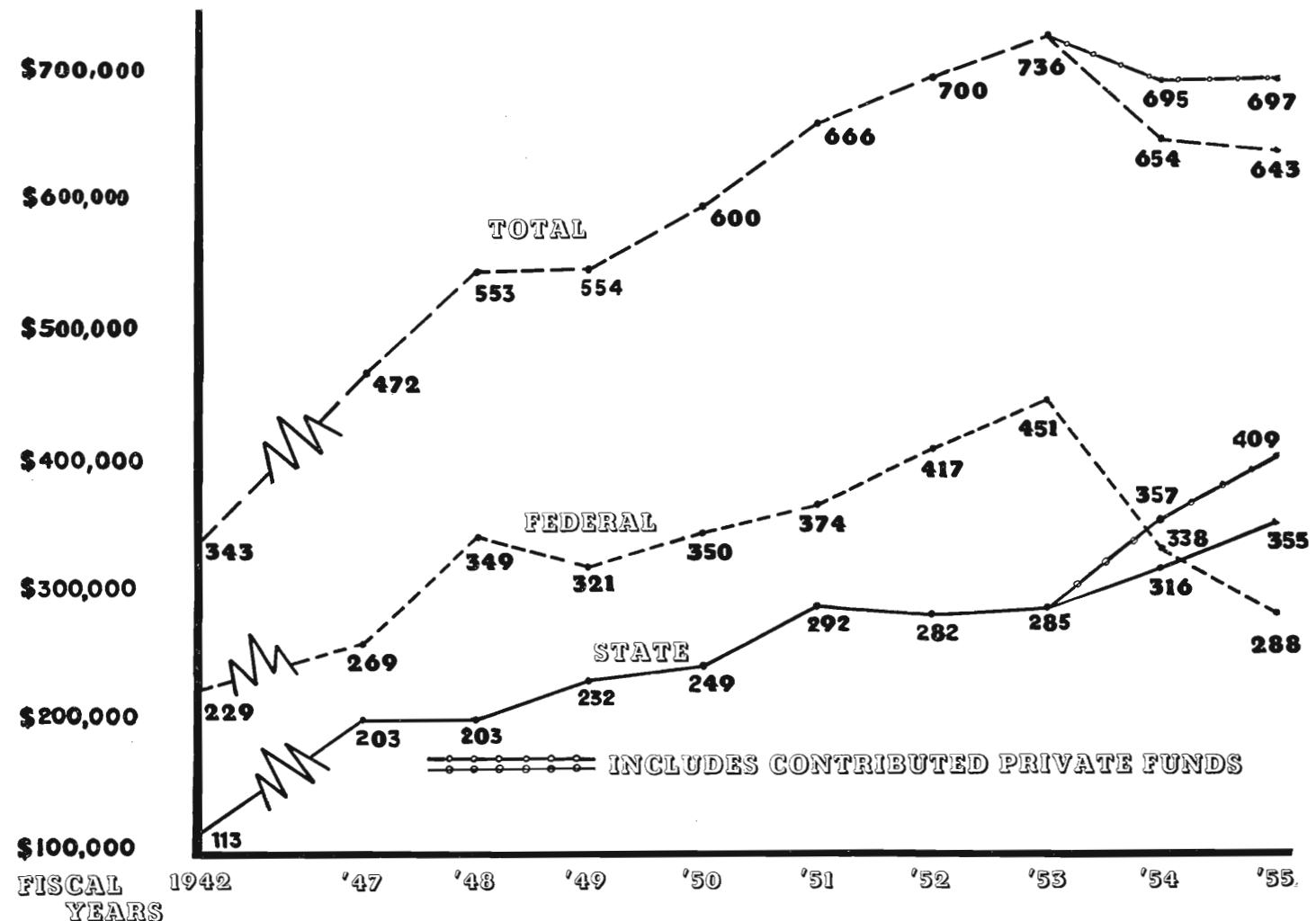
The Administrative office gave assistance to the Division of Environmental Sanitation in designing a multi-carbon form for food and drug licenses which reduced, or will reduce, the amount of clerical time required to accomplish this task.

A new form was also devised to speed up the issuance of certified copies of birth certificates in the Vital Statistics Office.

**Finances.** Table No. 1 summarizes State Board of Health expenditures for each of the fiscal years in this biennium by major items; table No. 2 shows the State Board of Health expenditures in the biennium with relation to the fund source: state, federal, and private.

A summary review of budgets and expenditures for the fiscal years

Annual Budget, Montana State Board of Health, Budgeted State & Federal Funds, Fiscal Years 1942 and 1947-55 Incl.



of 1942, and 1947 through 1955, is presented in table No. 3. Table No. 4 presents a summary of State Board of Health budgets and expenditures of federal funds for fiscal years 1942, and 1947 through 1955, showing the categorical fund sources.

Table No. 5 shows the expenditures of the Chest X-ray Survey for fiscal years 1953 and 1954, by source of funds (State and private).

Table No. 1A shows the budgeted full-time positions on the Board of Health Staff for fiscal years 1942, and 1947 through 1954. The accompanying bar graph illustrates this table.

TABLE NO. V  
Montana Chest X-ray Survey Financing

Agency Participation	Fiscal 1952-53 Budget	Fiscal 1952-53 Expenditure	Fiscal 1953-54 Budget	Fiscal 1953-54 Expenditure
Montana Tuberculosis Association... Montana Division	\$18,800.00	\$18,032.29	\$38,800.00	\$34,478.03
American Cancer Society-----	-----	-----	12,660.00	12,258.17
State Board of Health-----	62,777.93	69,381.32	44,945.00	48,069.61
TOTAL -----	\$81,577.93	\$87,413.61	\$96,405.00	\$94,805.81

#### Advisory and Related Committees

To carry out its services to the people of the State most effectively, advice and counsel from several committees has continued to be most helpful during the biennium. These are shown in the "Advisory and Related Committees" chart in this section.

Working relationships with all these committees are frequently referred to throughout this report.

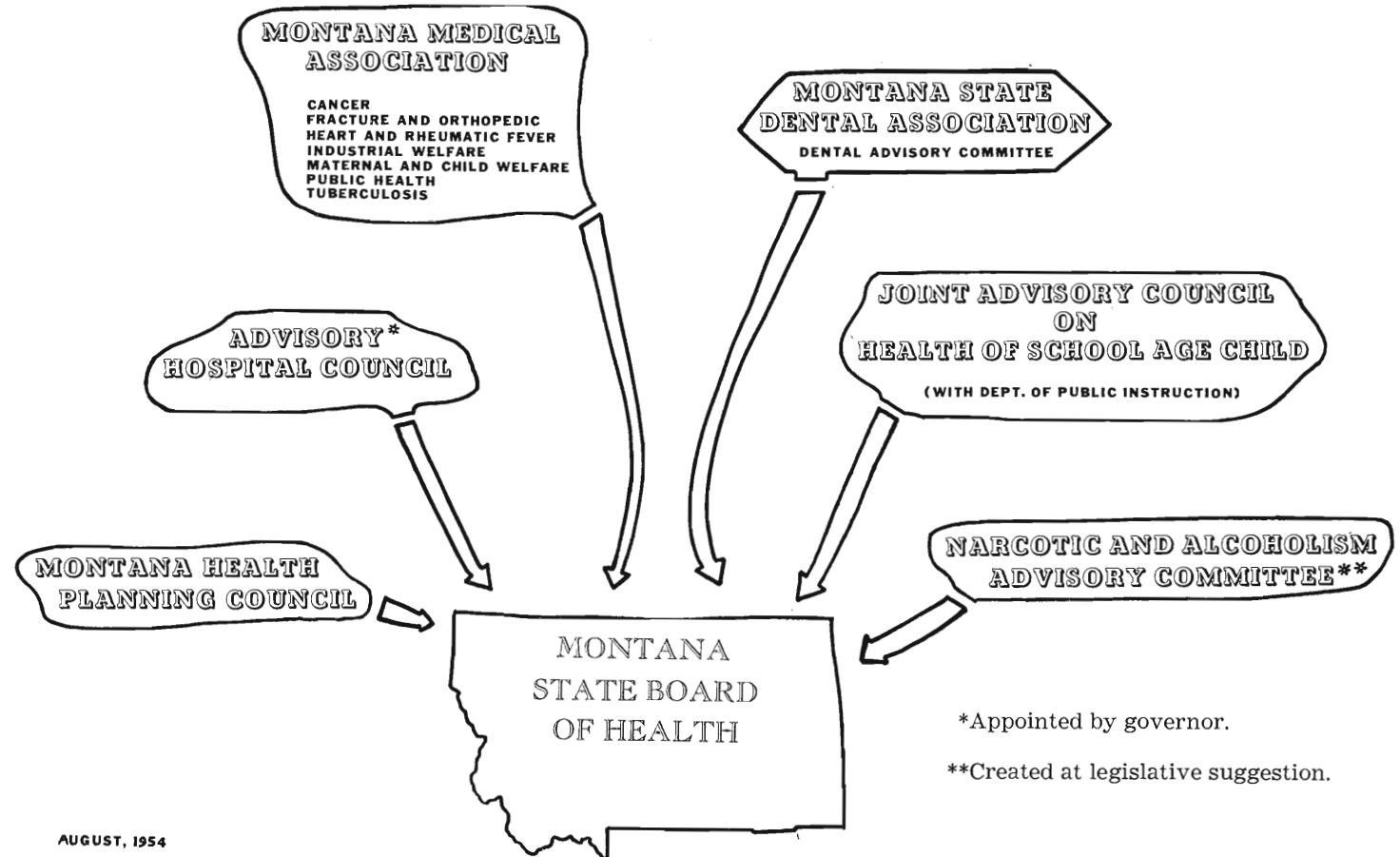
Professional advice to the State Board of Health, in the fields of medicine and dentistry, has continued through the **various committees of the Montana Medical Association** and the **Dental Advisory Committee of the Montana State Dental Association**.

The **Montana Health Planning Council** has continued to serve in its advisory capacity to the State Board of Health.

The Council has studied legislation in many areas of health and given support to several measures of interest to the State Board of Health. They have also studied the budget proposals and given their endorsement.

Several Montana health problems, such as rheumatic fever, Indian health, local health services, and needs have been studied. Health programs such as fluoridation of public water supplies have been endorsed.

ADVISORY and RELATED COMMITTEES to the  
STATE BOARD OF HEALTH



During this biennium this Council assisted in the success of the Chest X-ray Survey program. They have given stimulation to local members of groups they represent on the Council, thus making the initial planning for the community organization in each county much more successful. The enthusiasm of these contacts continues throughout the survey and is a major contributing factor to the increased percentage of participation.

The **Advisory Hospital Committees** were changed by the 1953 legislature. Under the original hospital construction and licensing acts, each program had an advisory council. The 1953 legislature amended the licensing law to abolish the council under the construction act and gave these duties to the licensing council.

During the biennium this Council recommended the revision of the State Board of Health's licensing and construction standards and certain aspects of the State plan were given consideration for revision.

The **Narcotic and Alcoholism Committee** continued its study of alcoholism in Montana during this report period. Its study was given impetus by the thirty-third legislative assembly, 1953, through House Joint Resolution No. 5, which commended this study, encouraged its continuation and directed the State Board of Health to report the findings and make recommendations to the thirty-fourth assembly, 1955.

A new **Joint Advisory Committee** (with Public Instruction) was formed during the biennium and will hold its first meeting with the **Joint Staff Committee** (composed of representatives of the two departments) early in the next biennium. Its purpose is to consider the health of the school-age child in matters of common interest to the two departments.

## JOINT AGENCY COMMITTEES and INTERDEPARTMENTAL COUNCILS

### ADMINISTRATION BOARD FOR MONTANA CENTER FOR CEREBRAL PALSY AND HANDICAPPED CHILDREN

Montana Society for Crippled Children  
Montana State Board Health  
Eastern Montana College of Education  
Billings School District

### AGRICULTURE AND LIVESTOCK COUNCIL

Exec. Officer, Livestock Commission  
Exec. Officer, Livestock Sanitary Board  
Exec. Officer, State Board of Health  
Commissioner of Agriculture  
Exec. Secretary, Milk Control Board  
Exec. Secretary, Poultry Improvement Board

MONTANA  
BOARD OF HEALTH

with REPRESENTATION from  
STATE BOARD  
OF HEALTH

### JOINT STAFF COMMITTEE FOR HEALTH OF SCHOOL AGE CHILD

State Dept. of Health  
State Dept. of Public Instruction  
and

It's Advisory Council (including  
representatives from eighteen  
education and health groups.)

### CHEST X-RAY SURVEY GENERAL POLICY COMMITTEE

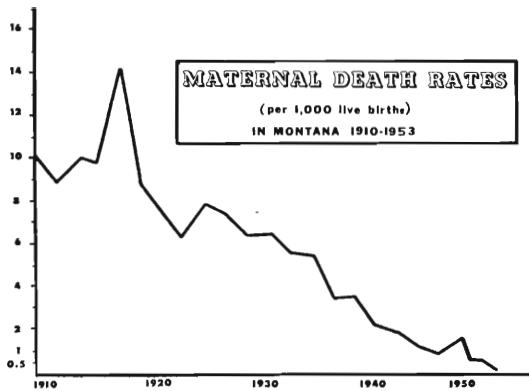
Montana Div. American Cancer Society  
Montana State Board of Health  
Montana Tuberculosis Association

### COUNCIL FOR WELFARE, HEALTH, AND INSTITUTIONS

Executive Officer, State Board of Health  
Administrator, Department of Public Welfare  
Warden, Montana State Prison  
President, Industrial School  
Superintendent, Girl's Vocational School  
Superintendent, Montana State Hospital  
Superintendent, Montana State Training School  
Superintendent, Montana State Orphan's Home  
President, Montana State Tuberculosis Sanatorium  
Supervisor, School for the Deaf and Blind  
State Supervisor, Home for the Smile Aged  
State Controller

\*CREATED BY LEGISLATIVE ACTION

NOVEMBER, 1954



## VITAL STATISTICS

The Bureau of Vital Statistics is the official custodian of Montana's vital records. This office is concerned with the complete and accurate registration of all births, deaths, stillbirths, marriages, divorces, adoptions and legitimations in Montana.

Approximately 915,000 records are indexed and filed in a fireproof vault in the old Board of Health building south of the capitol building. These include over 500,000 births; over 250,000 deaths; 81,510 marriages; 22,508 divorces; and 48,924 delayed birth registrations.

This report contains information on Montana's births, deaths, marriages, divorces and adoptions for the calendar years of 1952 and 1953. Births, deaths, marriages and divorces are reported in rates per 1,000 population; infant deaths, neonatal deaths, stillbirths and maternal deaths are recorded in rates per 1,000 live births; all other items are reported in rates per 100,000 population.

Montana has 74 local registrars: one at each of the 56 county seats and 18 at other strategic points for the convenience of reporting. Original records of vital statistics information are filed in this office; a duplicate is filed with the County Clerk and Recorder; the local registrar retains the triplicate copy. Information on marriages, divorces and adoption decrees is furnished this office by the 56 clerks of the District Courts.

Local registrars are paid 25 cents for each birth, death and stillbirth reported to this office. Payment is made by county treasurers upon certification, at the end of the calendar year by the state registrar.

Field visits to local registrars and court clerks are now being made only in emergencies. Future budgets should permit representatives of the state office of vital statistics to visit at least one-quarter of the state each year. Personal contacts have been found far more satisfactory than correspondence for explaining problems and deficiencies.

In the next biennium, the query program will be continued and inten-

sified as part of a continuing effort to develop more complete and accurate records.

It is expected the National Office of Vital Statistics will, in the next biennium, place in use, new standard certificate forms for reporting marriages, divorces and fetal deaths. Replacing the stillbirth certificate now in use, the new fetal death form will be used in reporting all fetal deaths, irrespective of pregnancy term. The medical certificate to be used with it is similar to the present death certificate and will give more information than is now available on the cause of fetal deaths.

The shortage of staff is handicapping the work of the office of Vital Statistics. There is now need for an additional clerk and, if the work volume continues its present rate of increase, another clerk-typist will have to be employed. The staff now consists of: a director; three clerk-typists; and a clerk-stenographer.

Certified copies of records are available from this office at a charge of \$1 each; no charge is made for copies supplied to the Veterans' Administration. Verification of records information is provided state and federal agencies without charge.

Correspondence and mail-handling in connection with these requests continue to increase. Searching of records for certified copies and verification of records reached a post-war record high in this report period. In 1952 these requests numbered 18,622; in 1953 they numbered 17,862. The 1952-53 requests show an increase of 4,268 over the 1950-51 volume. Fees collected for this service are deposited in the Montana general fund. These fees amounted to \$13,073 for the 1952-53 report period.

A detail of the certified copies issued by this office is presented below:

	1952	1953
Birth Certificates (Paid).....	6,465	6,386
Birth Certificates (Free).....	416*	544*
Death Certificates (Paid).....	619	647
Death Certificates (Free).....	181**	121
<b>Total Certified Copies Issued.....</b>	<b>7,681</b>	<b>7,698</b>

In addition to the certified copies there were for the two years:

Verifications .....	553	797
Current Notification Corrections.....	1,053	974
Affidavit Corrections .....	1,152	1,013
Delayed Birth Certificates Filed.....	1,235	1,156

\*Includes reissue of 91 births in 1952 and 89 births in 1953.

\*\*Includes reissue of 4 deaths in 1952 and 8 deaths in 1953.

**POPULATION.** Developed from the school census and the last federal census, Montana's population was estimated at 620,000 in 1952 and 640,000 in 1953. The state's natural population increase (births minus deaths), since the 1950 federal census, was 40,000; the remaining 10,000 population



**NEW RECORDING PROCEDURE**—A clerk in the office of Vital Statistics records birth certificate information on a punch-print card with a modern business machine designed to speed the work of recording and tabulating statistical information.

increase since 1950 must be attributed to immigration into Montana. Population figures, by counties, are detailed in Table I in the Vital Statistics section in the back pages of this report.

**DELAYED REGISTRATION OF BIRTHS.** Since 1950 requests to this office for delayed registration of births has more than doubled. The major share of the requests are received from people born prior to 1907, the year Montana's birth registration act was passed. In 1950 there were only 574 such requests; in 1952 this had increased to 1,233 and 1,156 in 1953. Indications from the first quarter of 1954 are that requests for delayed registration of births will continue to increase.

**ADOPTIONS.** Montana law requires that Court Clerks furnish this office certified copies of each adoption. A new birth certificate is then prepared with the adoptive name; duplicate and triplicate records on file with County Clerks and Local Registrars are also substituted. Original copies, duplicates and triplicates of the original birth certificates are placed in a sealed file with the court order of adoption. (This can be opened only on court order or at the request of the individual, if he is of legal age.) In this report period, 914 adoptions substitutions were made. It is expected this total will reach 1,000 in the 1954-55 period.

**NEW INDEX PROCEDURE.** Index cards were prepared on all records received in this office up to December 31, 1952. Information from

these cards was typed, 100 to the sheet, on permanent ledger pages. Since January, 1953, this indexing procedure has been discontinued. Business machine printing-punch cards are now used. At the end of each calendar year, a completed ledger is prepared from the printing-punch cards.

**BIRTHS.** Montana's 16,596 births in 1953 is a record-high for the state. This exceeds the previous high, of 1952, by 117 births (0.7%). The estimated increase in population from 1952 to 1953 gives Montana a higher birth rate, per 1,000 population, in 1952 (26.4) than in 1953 (25.9). These compare with national birth rates of 24.6 in 1952 and 24.7 in 1953. Sex ratios in Montana in 1952 was 104 males to 100 females; in 1953 it was 106 males for every 100 females. With the exception of illegitimate births and infant deaths shortly after birth, notifications of birth registrations are sent parents of all births recorded.



**DEATHS.** In 1952, this office recorded 5,974 deaths to give the state a death rate, per 1,000 population, of 9.6; the 6,125 deaths of 1953 gave Montana the same death rate, 9.6. The national death rate was also 9.6 in 1952 and 1953. Montana's birth-death ratio in 1952 was 276 births for every 100 deaths; in 1953 it was 271 to 100. This compares with a national ratio of 256 to 100 in 1952 and 257 to 100 in 1953.

**MARRIAGES.** A total of 13,007 marriages were recorded during the biennium in Montana, 6,410 for 1952 and 6,597 for 1953; the rate (per 1,000 population) was 10.3 for both years. The marriage rates for these two years are the lowest recorded, since central registration was established in 1943. In 1952 the national marriage rate was 10.0; in 1953 it was 9.9 per 1,000 population.

**DIVORCES.** Montana recorded 1,989 divorces and annulments in 1952 for a rate of 3.2 per 1,000 population. In 1953, 1,986 divorces and annulments were granted for a rate of 3.1. This gave the state a marriage-divorce ratio of 322 marriages per 100 divorces in 1952 and 332 marriages per 100 divorces in 1953. In this two-year period slightly more than 3½ marriages were recorded for every divorce awarded.

Below are tabulated the leading causes of death in Montana in 1952 and 1953. To illustrate the changing nature of health problems, Montana's 10 leading causes of death in 1910 are also shown, for comparative purposes.

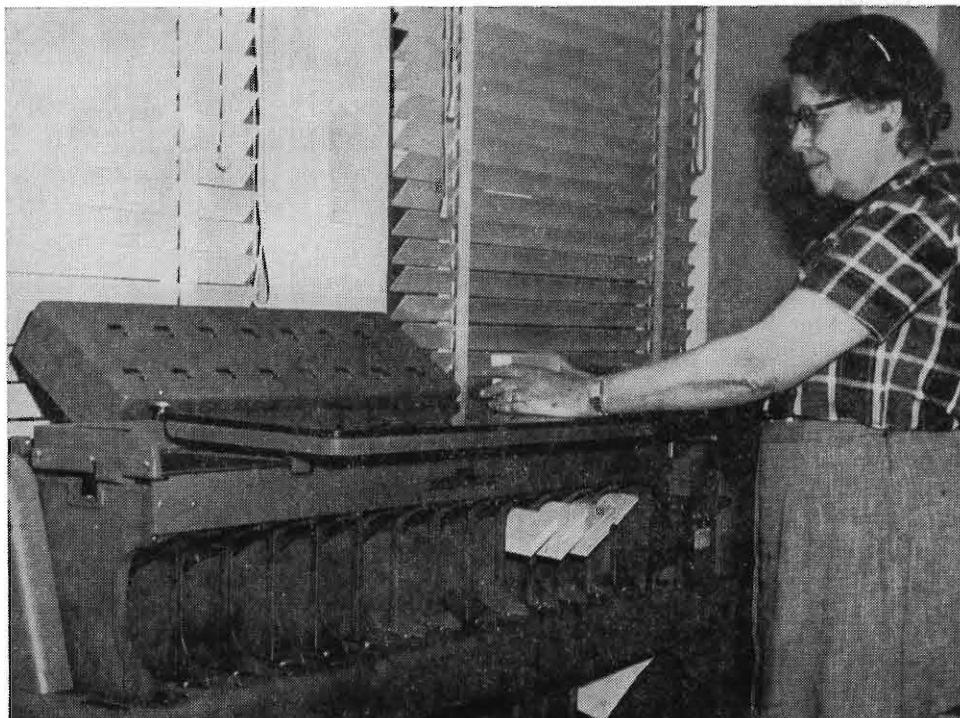
#### LEADING CAUSES OF DEATH

	1953	RATE (Per 100,000 Population)
1. Heart -----	2,164	338.1
2. Cancer -----	768	120.1
3. Vascular Lesions -----	649	101.4
4. Accidents, Total -----	534	83.4
5. Early Infancy -----	348	53.4
6. Pneumonia -----	180	28.1
7. Arteriosclerosis -----	157	24.5
8. Suicides -----	106	16.6
9. Nephritis -----	77	12.0
9. Tuberculosis -----	77	12.0
10. Diabetes -----	73	11.4
	1952	
1. Heart -----	2,032	327.7
2. Cancer -----	722	116.4
3. Vascular Lesions -----	651	105.0
4. Accidents, Total -----	564	96.0
5. Early Infancy -----	348	56.1
6. Pneumonia -----	147	23.7
7. Arteriosclerosis -----	139	22.4
8. Nephritis -----	120	19.4
9. Suicides -----	84	13.5
10. Diabetes -----	83	13.4
11. Tuberculosis -----	79	12.7
	1910	
1. Accidents -----	514	135.9
2. Tuberculosis -----	340	89.9
3. Pneumonia -----	282	74.6
4. Heart -----	257	67.9
5. Early Infancy -----	247	65.7
6. Diarrhea and Enteritis -----	226	60.1
7. Nephritis -----	222	58.7
8. Cancer -----	157	41.5
9. Typhoid -----	151	39.9
10. Vascular Lesions -----	112	29.6

**INFANT MORTALITY.** Montana's infant (under 1 year) mortality rate has been reduced approximately 77% since 1910: today one infant death is recorded where four occurred at the start of the century.

In 1951 Montana recorded an all-time low infant mortality rate of 26.7 per 1,000 live births, when 425 infant deaths occurred. The rate increased to 27.2 in 1952 (448 deaths) and to 28.9 (480 deaths) in 1953. National infant death rates for these two years were 28.6 in 1952 and 28.0 in 1953. The year 1953 marked the first time since 1917 that Montana's infant mortality rate was higher than the national average. Neonatal deaths (infant deaths in the first 28 days) accounted for 75% of all the infant deaths in 1952; neonatal deaths were responsible for 70% of the 1953 infant deaths.

**MATERNAL MORTALITY.** A record-low maternal death rate was established for Montana in 1953 when the three maternal deaths recorded that year set the state maternal death rate at 0.2 per 1,000 live births. The



**INFORMATION AT THE TOUCH OF A BUTTON**—This modern business machine in the office of Vital Statistics makes a wide range of information, recorded on business machine cards, available to the staff of the Board of Health at the touch of a button. Accurate, current vital statistics information is basic to sound public health planning.

previous record-low was 0.5 for 1952 when eight maternal deaths were recorded. These compare with national maternal death rates of 0.66 in 1952 and 0.56 in 1953. Montana's maternal death rate has been reduced 98% since 1910 when the state's maternal death loss stood at 10.1 per 1,000 live births.

**TABLE II (Page 154)**

Table II includes resident births, deaths, infant deaths, neonatal deaths, fetal deaths (stillbirths) marriages and divorces, for 1952, with rates by counties for 1952. The 1952 state birth rate was 26.4. The three counties having the highest birth rates were: Roosevelt, 39.4; Wibaux, 34.8, and Pondera, 34.7. The three counties with the lowest birth rates were: Golden Valley, 17.6; Madison, 17.7, and Jefferson, 18.1. For deaths the state rate was 9.6. The three high counties were: Meagher, 13.7; Silver Bow, 13.0, and Musselshell and Wheatland tied for third place with 12.8. The counties with the lowest rates were: Powder River, 6.2; Toole, 6.9, and Fallon, Lincoln and Mineral tied for third place with 7.0.

The infant death rate for the state was 27.2 and ranged from 90.9 in Wheatland County to no infant deaths reported from Daniels, Garfield, Golden Valley, Liberty, Musselshell, Petroleum, Sweet Grass and Treasure Counties.

The state rate for fetal deaths (stillbirths) was 20.5 per 1,000 live births, and ranged from: Petroleum, 35.6; Mineral, 46.9, and Sheridan, 38.6, to these counties reporting no fetal deaths for the year: Garfield, Golden Valley, Judith Basin, Musselshell, Powell, Prairie and Sanders.

The state marriage rate was 10.3. Counties with the highest rates were: Mineral, 86.0 (border county receiving influx from Washington, Oregon and Idaho); Custer, 30.9, and Chouteau, 14.3. Lows were: Petroleum, 1.2; Madison, 2.6, and Garfield, 2.7.

The divorce rate for the state was 3.2 per 1,000 of population. High rates occurred in: Broadwater, 19.4; Lewis and Clark, 7.6, and Pondera, 6.1. The low rates were in Liberty with none; McCone, 0.3, and Granite, 0.4.

**TABLE III (Page 156)**

Table III includes resident births, deaths, infant deaths, neonatal deaths, fetal deaths (stillbirths), marriages and divorces, for 1953, with their rates by counties.

The state birth rate was 25.9. The counties with the highest rates were: Roosevelt, 37.0; Pondera, 35.8, and Dawson, 33.8 (Roosevelt and Pondera were in the three highest for both years of the biennium). The counties having the lowest rates were: Carbon, 16.2; Meagher, 17.2, and Madison, 18.4 (Madison County was in the lower group both years).

The state infant mortality rate was 28.9 per 1,000 live births. High counties were: Glacier, 66.2; Garfield, 62.5, and Big Horn, 60.2. No infant deaths were reported from Meagher, Powder River and Treasure Counties.

For neonatal deaths, Petroleum was high with a rate of 55.6; Beaverhead, second with 45.8, and Garfield, third with 41.7.

Fetal deaths (stillbirths) for the state was 14.0 per 1,000 live births. The highest counties were: Golden Valley, 103.4; Deer Lodge, 28.6; Chouteau, 27.8. Fifteen counties did not report any fetal deaths during the year.

The state marriage rate was 10.3 per 1,000 of population. High counties were: Mineral, 92.6; Custer, 20.8; Richland, 17.7. Low marriage rates were in Garfield, 1.4; Meagher, 3.0, and Petroleum, 3.3.

The state divorce rate was 3.1. High counties were Broadwater, 18.4; Lewis and Clark, 8.7, and Pondera, 7.2 (the same three counties were high both years of the biennium). There were no divorces in Petroleum and Powder River Counties; the rate was 0.5 in Garfield.

**TABLES IV AND V (Pages 158 and 162)**

Tables IV and V list the causes of death according to the Abridged 6th Revision of the International Causes of Death.

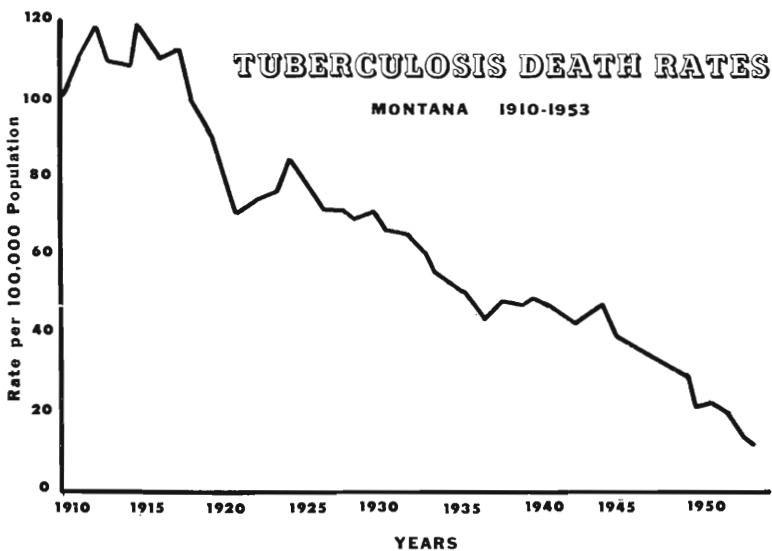
**TABLE VI (Page 166)**

Table VI shows the Resident Deaths by Cause and Rate, 1952-1953, International Classification 6th Revision Abbreviated.

**TABLE VII (Page 169)**

Table VII Summary Tables for the Biennium 1952-1953.

- VIIa Total births, deaths, infant deaths, neonatal deaths, fetal deaths, maternal deaths, marriages and divorces.
- VIIb Births and adoptions by months.
- VIIc Births by race, legitimacy, fetal deaths and plural births, with rates. Births by sex, with ratio.
- VIIId Deaths by months, sex, marital state and color or race, with percentage.
- VIIe Marriages by month of occurrence, type of marriage (Civil, Religion or Declaration), race or color, previous marital status and resident or non-resident.
- VIIIf Divorces and annulments by month of occurrence; the plaintiff number and percentage; the grounds for divorce; and the number of minor children involved.



**TABLE VIII (Page 173)**

This master table includes the number of events and the rates for all the years since records were available, from 1910 through 1953. It contains the population, births, deaths, infant deaths, maternal deaths, communicable diseases and principal causes of death. Marriages and divorces are included from 1943, the year central registration was established.

## BACTERIOLOGICAL LABORATORY

**Edith Kuhns,**  
**Director**



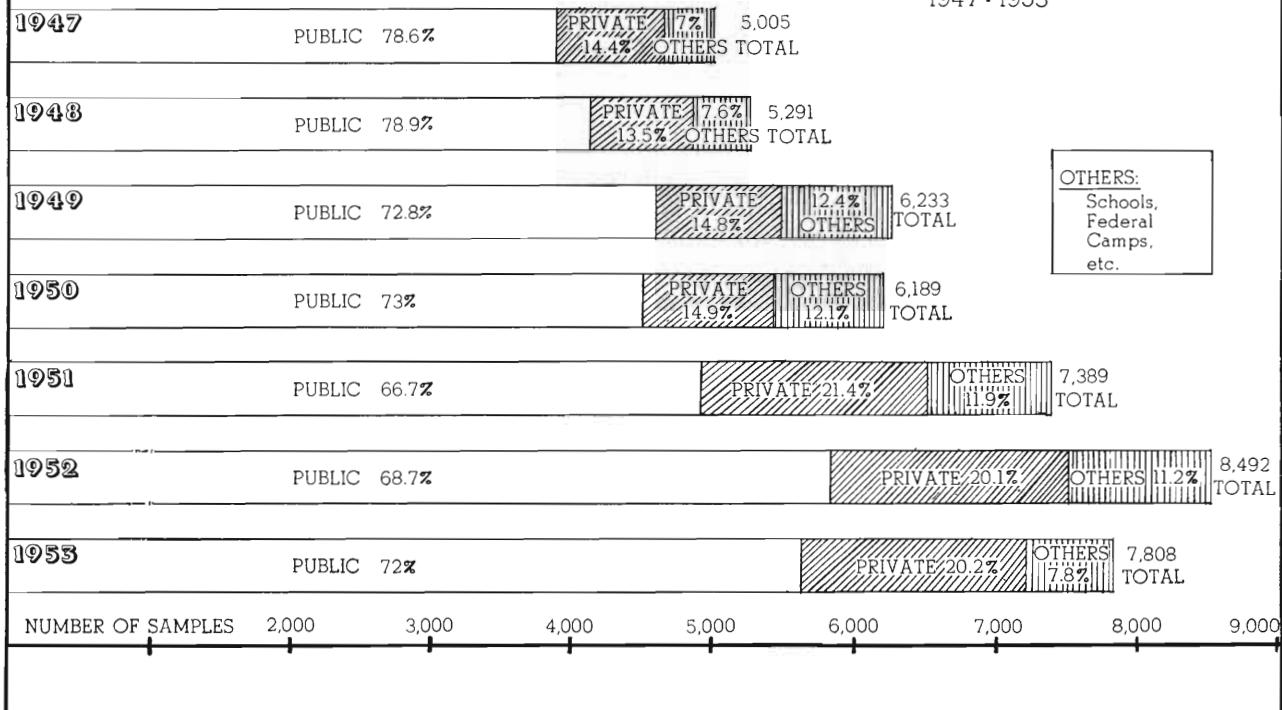
**IMPROVED TECHNIQUE**—A new syphilis serology technique adopted in the State Board of Health Bacteriological Laboratory this biennium permits the laboratory to run tests and issue a report the same day the specimens are received. Bacteriologists are pictured preparing specimen slides for viewing under the microscope as one step in the new technique.

In this biennium the Bacteriological Laboratory completed 247,832 examinations on 124,925 specimens of various types. Compared to the last report period, this is 5,354 more specimens and a reduction of 5,166 in the number of examinations. It was possible to handle more specimens with fewer examinations because improved screening techniques, now being used in the laboratory, reduce the number of required examinations.

Another factor is the reporting of bacterial water analysis by this division since January 1, 1952. In the past the water samples tested for bac-

Increasing Volume Bacteriological Water Analyses  
1947-1953

State Board of Health  
Bacteriological Water Analyses  
1947 - 1953



terial analysis have been reported by the Division of Environmental Sanitation.

A summarization of the examinations with classifications, by major types, is given in Table I (see page 31). Detailed tabulation of these examinations, and the results, are given in Table II (see page 34). A record of shipping containers and other similar containers dispensed by the laboratory are tabulated in Table III (see page 39).

TABLE I  
COMPARATIVE EXAMINATIONS  
Fiscal Periods 1950-52 and 1952-54

TYPE OF EXAMINATION	FISCAL PERIOD		GAIN OR LOSS	
	1950-52	1952-54	Number	Percent
Syphilis—				
Examinations	200,988	184,695	-16,293	-8.11
Specimens	101,403	92,250	-9,153	-9.03
Gonorrhea	1,182	1,296	+114	+9.64
Enteric Fevers	19,125	15,125	-4,000	-20.92
Brucellosis	5,916	4,936	-980	-16.56
Tularemia	5,756	4,940	-816	-14.18
Diphtheria	1,036	1,140	+104	+10.04
Tuberculosis	6,648	9,189	+2,541	+38.22
Parasitic Diseases	319	202	-117	-36.68
Miscellaneous Examinations	7,876	8,743	+879	+11.16
Environment Sanitation—				
Food Products	20	1,972	+1,952	+976.00
Water Analysis, Bacteriological	*4,132	15,594	+11,462	+277.00
TOTAL EXAMINATIONS	252,998	247,832	-5,166	-2.40
TOTAL SPECIMENS	119,571	124,925	+5,356	+4.48

\*Newly assumed at this time.

Dr. L. A. Black of the U. S. Public Health Service, R. A. Taft Engineering Center, Cleveland, made a survey and study in May 1954 of the standard bacteriological water analysis methods employed in this laboratory. Dr. Black's report complimented the laboratory on the work being done. Certain recommendations presented in his report are not feasible for adoption until facilities of the new state laboratory building are available.

Study of Table I shows a continued downward trend in the number of blood sample specimens submitted to this laboratory for syphilis serology. The greatest ratio decrease in specimens and examinations is noted in the parasitic examinations and the agglutination tests run for enteric fevers and other febrile diseases. Examinations for tuberculosis reflect the greatest ratio increase. This, to some extent, is a direct result of the continued follow-up program in connection with the intensified chest x-ray survey program.

Limited facilities for animal pathogenicity tests for tuberculosis are being seriously taxed by the increasing demand for diagnostic services for this disease, particularly those concerned with various body fluids,

other than sputum. There is, also, an increasing demand for drug and antibiotic sensitivity tests for evaluation of individual treatment in tuberculosis.

Adoption of the VDRL slide test as a screening procedure for syphilis serology—with only reactors and spinal fluid specimens subjected to the Kolmer CF test—has resulted in more prompt reporting and a substantial saving in staff work. The use of a new combined history-report form for syphilis serology has proved an efficient time-saver.

Beginning September 1, 1953 a \$1 charge has been made for water samples from private sources submitted for bacteriological analysis. Previously done without charge, this fee became necessary because of a shortage of operating funds for the laboratory. At the same time, fees were established for chemical analysis of water samples from private supplies: \$5 for a partial chemical analysis and \$10 for a complete chemical analysis of the water sample.

Plans for the next biennium include the establishment of specific policies and standards governing the approval of Montana laboratories for the performance of syphilis serology.

#### FACILITIES & EQUIPMENT

Completion of the new State Laboratory building is expected to provide space for some diagnostic facilities not now possible in the State Board of Health bacteriological laboratory quarters. It is imperative that someone with an understanding of public health laboratory needs and laboratory construction, work with the architect and building superintendent to insure the space in this new building be arranged for: (1) the greatest utilization of space and (2) the most advantageous working facilities.

Completion of the laboratory building will permit the development of new routine diagnostic procedures for certain viral diseases, including those using tissue culture methods.

Recent technical advances in virology make such routine procedures possible in smaller state laboratories.

A portable membrane filter is being utilized by the staff of the division of Environmental Sanitation in field studies of water pollution. A series of comparative tests is being run in the laboratory to determine the efficiency of this portable filter as compared with other standard testing methods.

The possible advantages of using some form of copying machine to facilitate the processing of laboratory reports is being studied. Should such equipment prove of economy and efficiency in processing the large volume of reports, it will be adapted to the laboratory procedures.

The following new equipment was installed in the laboratory in this

report period: a large-capacity steam sterilizer; a large electric drying oven; three centrifuges; one microscope and lamp; a large water bath; and one electric still and storage tank.

Modification of certain office procedures and revision of several report forms have contributed materially to the efficiency of the operation of the laboratory in this biennium.

#### STAFF

Close correlated relationship between follow-up of significant laboratory findings and epidemiologic studies of certain communicable diseases has been impossible in this biennium because the position of disease control officer on the State Board of Health staff has been vacant. The board's executive officer, serving as acting disease control officer, has been able to give his attention to only the most pressing problems of the disease control office. When this position is filled, more effective utilization of this laboratory's services will be possible.

Because of insufficient staff and the continued turnover in technical staff, it has been impossible to carry out the diagnostic procedure changes recommended in the 1950-52 biennial report. These recommended changes are still valid and worthy of consideration.

This continuing turnover of technical personnel remains the most serious problem in the administration of the laboratory. A number of factors are responsible for the staff turnover: the appeal of better-paying positions; desire for further education; the advantages of working in larger laboratories associated with research groups and universities convenient to scientific meetings and extensive library facilities.

In 1954 a bacteriologist from this laboratory was sent to an intensified six-week, in-service course of study with the laboratory divisions of the Indiana and Georgia state health departments. Upon his return he was assigned the responsibilities of assistant director. Further on-the-job training will permit this bacteriologist to assume certain of the more exacting technical and supervisory duties of the laboratory. In turn, this will permit the laboratory director to devote more time to administrative matters.

Employment of a full-time laboratory helper during staff-short vacation months has done much to facilitate work, during these periods, especially in the preparation and shipping units of the laboratory.

Provision should be made for offering intensified training for technicians serving in local private hospital and clinic laboratories. Emphasis in these courses should be on "Laboratory Diagnostic Methods in Communicable Diseases," particularly those concerned with enteric diseases, respiratory diseases and the bacteriology of body fluids. Teaching facilities at the units of the University of Montana might well be utilized for such instruction.

**TABLE II**  
**REPORT OF LABORATORY EXAMINATIONS**  
**Fiscal Period 1952-54**

TYPE OF SPECIMEN	Specimens Submitted	Examini- nations	EXAMINATION RESULTS				
			Pos.	Dbt.	Neg.	Unsat.	Unclass.
<b>SYPHILIS</b>							
Blood							
Kolmer Simplified	48,003	48,122	1,155	246	45,005	1,716	---
Kolmer Quantitative	265	1,545	850	138	452	105	---
Kahn Standard	1,398	42,083	751	259	37,797	3,276	---
Kahn Quantitative	283	659	387	11	218	43	---
V.D.R.L. Slide Qual.	40,942	48,234	748	320	46,074	1,092	---
V.D.R.L. Slide Quant.	22	57	31	5	18	3	---
Mazzini Qual.	---	39,972	805	350	37,903	914	---
Other (Kline)	---	9	5	---	4	---	---
Other (Mazzini)	---	4	1	1	2	---	---
Spinal Fluid							
Kolmer Simplified	---	3	---	---	3	---	---
Kolmer Quantitative	1,336	1,334	48	14	1,160	112	---
Colloidal Gold Test	---	1,336	---	---	---	375	961
Total Protein	---	1,336	---	---	24	416	896
Other Fluids							
Kolmer Quantitative	---	---	---	---	---	---	---
Lesion Fluids							
Treponema pallidum							
Darkfield (Direct)	---	---	---	---	---	---	---
Delayed	1	1	---	---	---	1	---
Stained Smear	---	---	---	---	---	---	---
(The following included in the above figures)							
Number of Premarital Tests	11,939	---	---	---	---	---	---
Number of Prenatal Tests	23,834	---	---	---	---	---	---
<b>TOTAL SYPHILIS</b>	<b>92,250</b>	<b>184,695</b>	<b>4,781</b>	<b>1,344</b>	<b>168,660</b>	<b>8,053</b>	<b>1,857</b>
<b>CHANCROID</b>							
Smears	---	---	---	---	---	---	---
<b>OTHER V.D. DISEASES</b>							
C.F. Lymphopathia							
Venerum	2	2	---	---	---	---	2
<b>GONORRHEA</b>							
Smears	1,278	1,278	80	60	1,130	8	---
Cultures	15	15	1	3	10	---	1
Comp.-Fix	3	3	---	---	1	1	1 TNR
<b>TOTAL VENEREAL DISEASES</b>	<b>93,548</b>	<b>185,993</b>	<b>4,862</b>	<b>1,407</b>	<b>169,801</b>	<b>8,062</b>	<b>1,861</b>
<b>VINCENT'S INFECTION</b>							
Smears	1	1	---	---	1	---	---
<b>DIPHTHERIA</b>							
Direct Smear							
Culture	1,121	1,121	15	14	1,068	24	---
Virulence Test	3	19	13	---	6	---	---
<b>TUBERCULOSIS</b>							
Sputum							
Microscopic	3,525	3,525	239	3	3,228	53	2
Culture	---	3,523	311	3	3,046	148	15
Animal Inoculation	---	11	---	---	7	4	---
Direct Smear	1	1	---	---	1	---	---
Gastric Lavage							
Microscopic	168	168	---	---	---	168	---
Culture	---	168	11	---	131	25	1
Animal Inoculation	---	166	14	---	127	25	---

TABLE II (Continued)

TYPE OF SPECIMEN	Specimens Submitted	Examina-tions	EXAMINATION RESULTS			
			Pos.	Dbt.	Neg.	Unsat. Unclass.
Urine						
Microscopic	286	286	—	—	—	286
Culture	—	285	12	—	227	46
Animal Inoculation	—	284	18	—	249	17
Pleural Fluid						
Microscopic	68	68	1	—	67	—
Culture	—	68	2	—	58	8
Animal Inoculation	1	69	1	—	65	3
Spinal Fluid						
Microscopic	129	129	—	—	116	13
Culture	—	129	7	—	104	18
Animal Inoculation	—	73	9	—	52	12
Miscellaneous (Drainage, Fluids, Tissues, etc.)						
Microscopic	78	78	6	1	66	5
Culture	5	73	13	1	50	9
Animal Inoculation	5	65	13	—	48	4
Cultures A.F. Bacilli						
Confirmation of Path.	19	20	11	—	8	1
Blood						
Complement-Fixation	—	—	—	—	—	—
TOTAL TUBERCULOSIS	4,285	9,189	668	8	7,650	845
18						
PARASITIC DISEASES						
INTESTINAL PARASITES						
Ascaris lumbricoides	4	4	2	—	2	—
E. coli	—	—	—	—	—	—
E. histolytica	14	17	1	—	14	—
Blood—C.F.	2	2	—	—	2	—
Enterobius vermicularis	—	—	—	—	—	—
Complement-Fixation	—	—	—	—	—	—
Miscellaneous	6	6	—	—	5	—
Routine-Type not stated	175	214	1	2	195	6
Specimens for Ident.	1	1	—	—	—	1
MYCOTIC INFECTIONS						
Epidermal						
Direct Microscopic	4	4	—	—	—	4
Culture	15	15	—	—	2	—
Pulmonary						
Direct Microscopic	1	1	—	—	—	1
Culture Ident.	10	11	—	—	—	11
Other	3	3	—	—	—	3
Complement-Fixation	4	4	—	—	1	—
MALARIA						
Blood Smears	19	19	1	1	10	7
FEBRILE DISEASES						
ENTERIC INFECTIONS						
Blood Agglutination						
Tests	4,924	—	—	—	—	—
Typhoid "O"	—	4,924	10	18	4,431	465
Typhoid "H"	—	4,924	36	80	4,616	192
Paratyphoid A	1	1	—	—	—	1
Paratyphoid B	—	4,924	10	42	4,232	640
Dysentery	—	1	—	—	—	1
Clot Culture	—	—	—	—	—	—
S. typhosa	5	5	1	—	4	—

TABLE II (Continued)

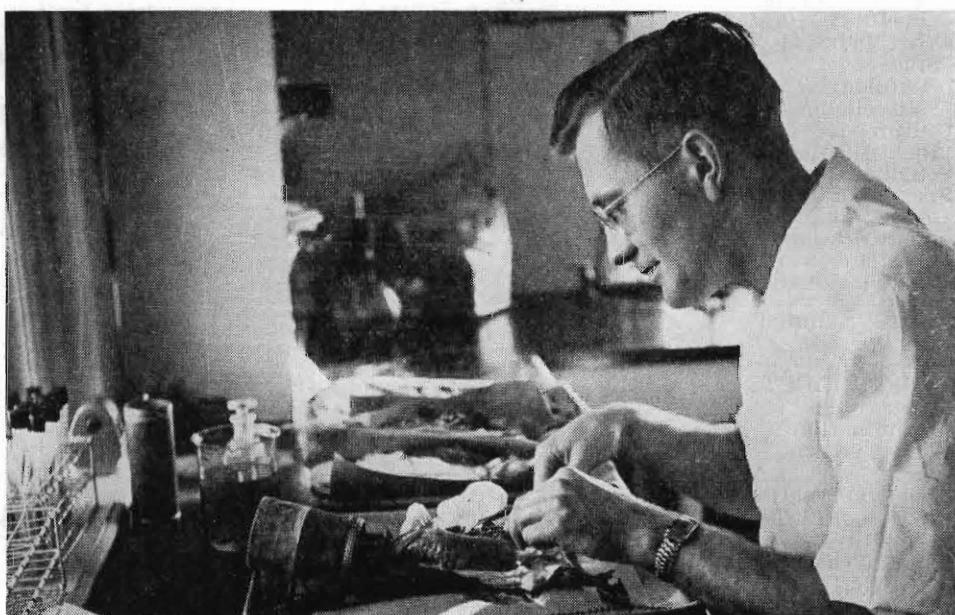
TYPE OF SPECIMEN	Specimens Submitted	Examini- nations	EXAMINATION RESULTS				
			Pos.	Dbt.	Neg.	Unsat.	Unclass.
Feces Cultures							
S. typhosa	308	308	2	3	279	23	1
Other Salmonella	1	1	1	---	---	---	---
Shigella	3	3	3	---	---	---	---
Other Enteric Organisms	---	---	---	---	---	---	---
Urine Cultures							
S. typhosa	3	3	---	---	3	---	---
Other Enteric Organisms	---	---	---	---	---	---	---
Other							
S. typhosa	3	3	---	---	2	1	---
Other Enteric Organisms	5	5	---	---	---	---	5
ENTERIC TYPINGS							
Feces Cultures							
Salmonella	20	20	1	---	---	---	19
Shigella	3	3	---	---	---	---	3
BRUCELLOSIS							
Blood Agglutinations	1	4,925	20	10	4,779	116	---
Blood Cultures	8	8	---	---	6	1	1
Blood Clot Cultures	---	---	---	---	---	---	---
LEPTOSPIROSIS	3	3	---	---	---	---	3 Ref.
TULAREMIA							
Animal Inoculation	1	1	1	---	---	---	---
Blood Agglutinations	14	4,939	77	56	4,688	118	---
INFECTIOUS MONONUCLEOSIS							
Heterophile Antibodies							
Davidson's Presumptive	4	4,925	61	22	4,679	163	---
Davidson's Confirmatory	---	26	26	---	---	---	---
RICKETTSIAL INFECTIONS							
Weil-Felix							
Agglutinations	53	64	---	---	---	---	64 Ref.
Complement-Fixation	29	36	---	---	---	---	36 Ref.
Other	---	---	---	---	---	---	---
VIRAL INFECTIONS							
"Studies"	3	3	---	---	---	---	3 Ref.
Cold-Hemagglutinins	21	21	---	---	---	1	20 Ref.
Complement-Fixation	20	26	6	---	---	---	20
Miscellaneous	8	8	---	---	---	2	6 Ref.
Smear Trachoma	3	3	---	---	1	---	2
MISCELLANEOUS							
Blood							
Rh Factor	2,140	2,140	---	---	---	128	2,012
Blood Type	120	913	---	---	---	9	904
Red Cell Count	---	---	---	---	---	---	---
White Cell Count	---	---	---	---	---	---	---
Differential Count	8	8	---	---	---	---	8
Chemistry	7	8	---	---	---	2	6
Culture (other than enteric)	106	106	---	---	---	1	105
Alcohol Content	15	15	---	---	---	---	15 Ref.
Spinal Fluid							
Microscopic, Direct	2	2	---	---	---	---	2
*Culture	32	35	1	---	---	---	34
Cell Count	2	2	---	---	---	---	2
Sugar	---	---	---	---	---	---	---
Total Protein	2	7	---	---	---	---	7
Pandy's Test	---	---	---	---	---	---	---

TABLE II (Continued)

TYPE OF SPECIMEN	Specimens Submitted	Exam- inations	EXAMINATION RESULTS			
			Pos.	Dbt.	Neg.	Unsat. Unclass.
Urine						
Clinical Urinalysis	23	23	---	---	---	23
Microscopic	1	23	---	---	---	23
Chemistry	1	1	---	---	---	1
*Culture	7	7	---	---	---	7
Pregnancy Test	6	6	---	---	2	4 TNR
Feces						
Occult Blood	22	22	12	---	10	---
Chemistry	1	1	---	---	---	1
Gastric Contents, Chemical	1	1	---	---	---	1 Ref.
Other Body Fluids, Tissues, Transudates, Exudates						
Microscopic	17	20	---	---	---	20
Culture	70	73	---	---	1	72
Other Types of Cultures	6	6	---	---	---	6
Throat— not diphtheria	11	11	---	---	---	11
Antibiotic Sensitivity	50	50	---	---	---	50
Autogenous Vaccine	3	3	---	---	---	3
Water—Sterility	6	6	---	---	---	6
Pertussis	1	1	---	---	1	---
Other Types of Smears						
Cytology	5	5	---	---	---	5
Miscellaneous	8	8	---	---	---	8
Cultures for Identification						
(Other than Enteric)	14	14	---	---	---	14
Spermatoza	2	2	---	---	---	2
Insects for Identification	4	4	---	---	---	4
Miscellaneous Objects for Identification	4	4	---	---	---	4
Toxicity, Animal Tests	2	2	---	---	---	2
FOOD PRODUCTS						
Microscopic Examination			---	---	---	---
Bacteriological Analysis	5	5	---	---	---	5
Chemical Analysis	---	---	---	---	---	---
Toxicological Tests	2	2	---	---	---	2
Precipitin Tests	---	---	---	---	---	---
TOTAL FOOD PRODUCTS	7	7	---	---	---	7
DAIRY PRODUCTS						
Cheese			---	---	---	---
Butter	261	261	---	---	---	261
Ice Cream	1,672	1,672	---	---	---	1,672
Ice Cream Mix	32	32	---	---	---	32
TOTAL DAIRY PRODUCTS	1,965	1,965	---	---	---	1,965

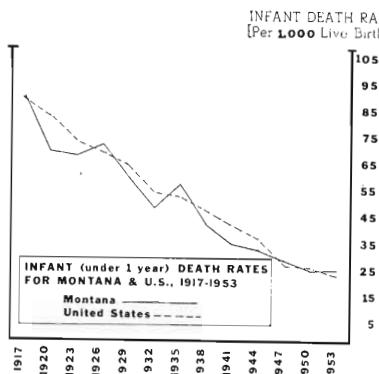
TABLE II (Continued)

TYPE OF SPECIMEN	Specimens Submitted	nations Examined	EXAMINATION RESULTS					
			Pos.	Dbt.	Neg.	Unsat. Unclass.		
<b>WATER ANALYSIS</b>								
Bacteriological (Coliform)								
Public Supplies	11,361	11,361	---	---	---	11,361		
Private Supplies	2,954	2,954	---	---	---	2,954		
Schools	460	460	---	---	---	460		
Federal	446	446	---	---	---	446		
Railroads	137	137	---	---	---	137		
Tourist Camps	149	149	---	---	---	149		
Miscellaneous	31	31	---	---	---	31		
<b>TOTAL DRINKING SUPPLIES</b>								
Swimming Pools	22	22	---	---	---	22		
Sewage Pollution	31	31	---	---	---	31		
Water, New Still, Mineral Count	1	1	---	---	---	1		
Biology, Aquatic Specimens for Ident.	2	2	---	---	---	2		
<b>TOTAL WATER ANALYSIS</b>								
GRAND TOTALS, ALL EXAMS.	15,594	15,594	---	---	---	15,594		
124,925	247,832	5,831	1,663	206,487	10,811	23,040		



**ANIMAL EXAMINATION**—Animal pathogenicity testing facilities are being seriously taxed in the laboratory. A bacteriologist (above) examines a laboratory animal for confirming evidence of a disease, after suspected human materials (sputum, etc.) have been injected into the animal and permitted to incubate.

TABLE III Record of Specimen Containers and Other Materials Shipped 1952-54		
Syphilis		
Vials, Blood Collection.....	99,656	
Containers, Mailers .....	38,288	
Delayed Darkfield Outfits.....	3	
Keidel Vacuum Blood-letting Tubes.....	1,848	
Diphtheria		
Culture Media, Loeffler's.....	1,982	
Containers, Mailers .....	1,002	
Swabs, Sterile .....	1,982	
Tuberculosis		
Bottles, Collection .....	4,574	
Containers, Mailers .....	4,412	
Gonorrhea		
Slides .....	1,832	
Mailers, Wooden .....	902	
Enteric Diseases		
Widal Outfits .....	6	
Bottles, Feces Collection.....	466	
Containers, Mailers .....	474	
Water, Bacterial Analysis		
Bottles, Collection, Total.....	15,442	
Private .....	4,270	
Cities .....	10,657	
Miscellaneous Sources .....	515	
Miscellaneous		
Blood Culture Media.....	36	
Nutrient Agar Slants.....	12	
Sabouraud's Dextrose Agar Slants.....	12	
Blood Agar Plates.....	12	
Syphilitic Sera for Control Purposes, Lots.....	150	
<b>TOTAL PIECES .....</b>	<b>173,091</b>	



## CHILD HEALTH SERVICES

Paul R. Ensign,  
director

**INFANT DEATHS DOWN**—The above graph reflects the steady decline in Montana's and the nation's infant (under 1 year) mortality rate. In Moniana 1,099 infant deaths were recorded in 1917 to give the state an infant death rate (per 1,000 live births) of 94. The national rate that year was 93.8. In 1953, in Montana, 467 infant deaths were recorded for an infant death rate of 28.4; the national infant death rate that year was 27.9.

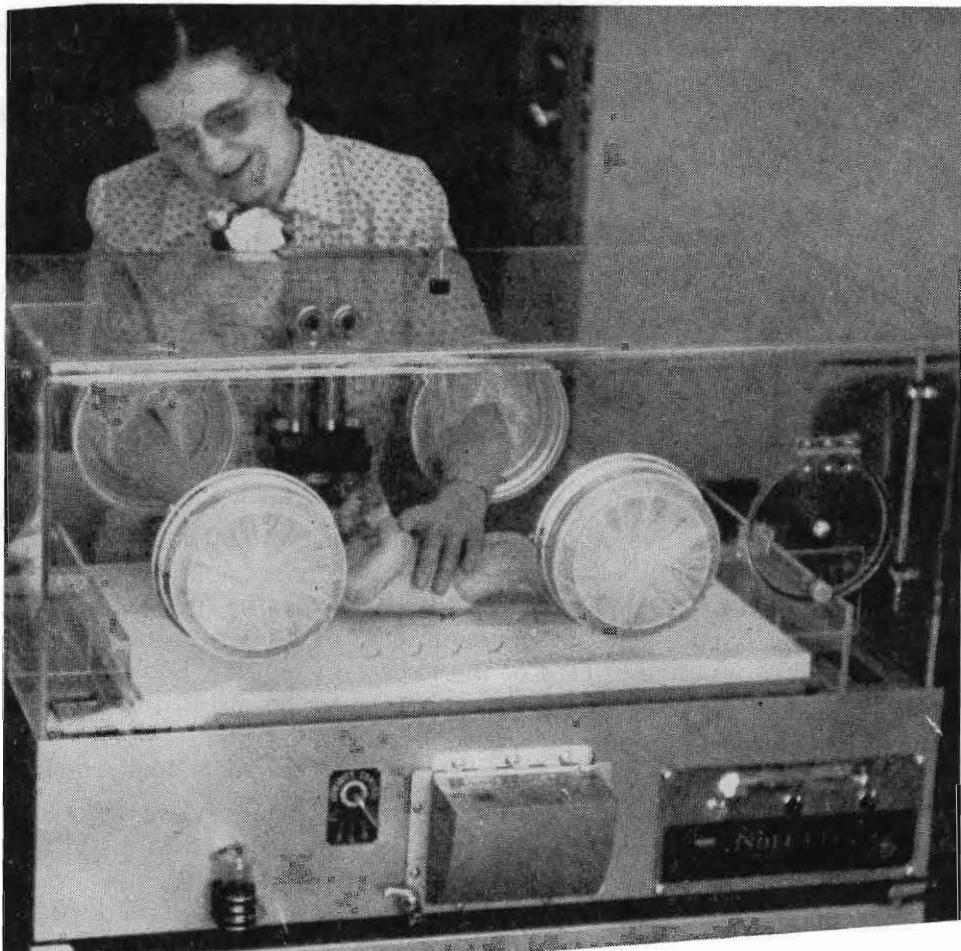
Many of the diseases and crippling conditions of infancy, childhood and child-bearing are probably preventable. Those falling outside the realm of preventability can, in many cases, be corrected or mitigated.

But preventable diseases and crippling conditions are still being recorded in Montana, as in all parts of the world. Crippling conditions and deaths, that need not occur, stand in brazen defiance of modern medical knowledge. Good maternal and child health practices must still view much of our daily living pattern across a gap of ignorance or indifference. A narrow gap, in spots; but in others, discouraging.

In those areas where understanding of good maternal and child health practices have fused with a living pattern, it is not possible to bask in the sunshine of accomplishment. Only in continued vigilance is there hope for victory.

### Maternal Deaths

While the number of births recorded in Montana has climbed to a record high, the state's maternal death rate has been cut to an all-time low. Only three maternal deaths were recorded in 1953 to give the state



**FOR IMPROVED CARE**—Miss Daisy Prentice, hospital nursing consultant, demonstrates a new type incubator (containing a nebulizer) to the nursing staff of a Montana hospital. This new type incubator is now being loaned, on a demonstration basis, to hospitals throughout the state in order that staffs can become familiar with the new equipment. The nebulizer has been useful in treating many critical illnesses in children.

a record-low maternal death rate of 0.2 per 1,000 live births; probably the lowest in the nation.

These three deaths were attributed to hemorrhage. In reviewing reports of these three maternal deaths, the Maternal and Child Health Committee of the Montana Medical Association adjudged each death preventable.

Maternity units in Montana hospitals are being improved through

a cooperative program with hospital administrators and the State Board of Health's divisions of Child Health Services, Public Health Nursing and Hospital Facilities. Hospitals providing delivery services are now required, by state licensing regulations, to provide facilities for blood transfusions.

#### **Mother-to-Be**

Improved care of the expectant mother is the best approach to healthier babies and safer deliveries for mothers. In this report period classes for expectant mothers were conducted by public health nurses in Custer, Hill, Richland and Pondera Counties. Designed to stimulate the mother-to-be to good prenatal practices, the classes are being planned for other areas of the state. Many expectant mothers not yet under the care of a physician are discovered in routine Public Health Nursing home visits. To get these expectant mothers under medical care early in pregnancy is the best approach to healthier mothers and babies.

In some areas of the state the greatest obstacle to starting classes for expectant mothers is the physicians' failure to understand the objective of the classes. Hospitals, physicians and public health nurses in other areas have overcome this misunderstanding by an enthusiastic team approach to the problem of care of the expectant mother. Some areas of the state will not be able to develop such classes because they have no local public health nurses.

#### **Congenital Malformations**

The Montana Obstetrical and Gynecological Society has appointed a special committee to work in cooperation with this division in a study of congenital malformations occurring in Montana. This far-sighted action by the Society will be a great aid in bringing closer the day when it may be possible to prevent more and more of these malformations.

#### **Infant Deaths**

Study and experience dictate that preventable deaths are occurring when an infant death rate is above 40 (per 1,000 live births). In Montana a study revealed, in 1951, these counties (with over 200 births) all had infant death rates above 40:

<b>Big Horn County</b>	.....	<b>59.9</b>
<b>Blaine County</b>	.....	<b>53.6</b>
<b>Glacier County</b>	.....	<b>53.0</b>
<b>Hill County</b>	.....	<b>40.8</b>

These four counties have high Indian populations. It is evident the problem in these areas is to develop a method of encouraging medical supervision of the well child. Child Health Conferences and Well-Child

Conferences have proved effective in other counties and in other states. But because of the difference in customs, nutritional habits and living conditions, adjustment of these approaches by local health department personnel is essential to success. Improved local health services is basic to the solution.

Frequent changes on the Indian Service Medical staffs tend to make a difficult task very nearly impossible. In those areas where Child Health Conferences and Well-Child Conferences have been initiated, the transfer of key medical staff members by the Indian Service ends the program. This division is unable to give adequate consultation services in these areas because of a shortage of staff personnel; direct service is impossible for the same reason.



**GOOD NUTRITION IMPORTANT**—Montana counties with the highest infant death rates are those counties with high Indian populations. Differences in customs, nutritional habits and living conditions add to the difficulty of encouraging medical supervision of the well child. A young Montana Indian mother is pictured feeding her husky, healthy infant.

A pediatric consultant on the staff of this division would make it possible to do a better and more complete job of assisting the Indian Service and the public health nurses in working to reduce the infant death rates in these areas.

Efforts have been made to secure funds to finance a project designed to reduce Montana's infant deaths among Indians. As yet, no funds for such a program have been secured.

Education of the mother to the care of her child is essential to success. Child Health Conferences are designed to stimulate parents to obtain child health supervision of their children from their own physicians. To achieve this, the demonstrations given at these conferences should be of top quality. While there is need for more Child Health Conferences throughout the state, there is a greater need for consultation from this division to those now in operation. Such consultation is required for an effective child health program.

Child Health Conference effectiveness is dependent, in a large measure, on the number of children the physician is required to see and examine. A reduction in the number of children the physician is required to see would be a great aid to the effectiveness of such a program.

Without a pediatric consultant on this division's staff, efforts to develop or improve Child Health Conferences have been greatly hampered. In this report period only two new conferences were initiated; both of them organized by local health department personnel in a new health district (Sanders and Lake Counties). One was initiated by the division director on an Indian Reservation; but the pressure of other work forced its discontinuance before the end of this biennium. None of the Child Health Conferences, now being conducted by local health departments, were visited in this report period by personnel from this division. Additional staff would permit this essential service.

The infant death rate for the entire state increased, in this biennium, from 26.7 (per 1,000 births) in 1951 to 27.2 in 1952 and 28.4 in 1953. Reduced to rates this appears as a slight change; the significance is that it represents an undesirable trend.

Physicians have returned questionnaires to this office with information on 70% of the infant deaths reported in this period. Review, study and tabulation of this information could be helpful in giving direction to an adjusted program designed to trim the state's infant death rate. But this division is without the personnel to review and interpret the information that could be of such help in this work. Recruiting for professional personnel is difficult because of the inability to offer qualified persons salaries competitive to private industry.

### Fetal, Neonatal Deaths

Fetal and neonatal deaths in Montana should be studied for understanding of the problem and for sound planning of a program designed to reduce the deaths. (If a baby under 1 month of age dies, it is a neonatal death; if the death is before birth, it is classed as a fetal death.)

The state medical association's Maternal and Child Health Committee is carrying on a study of Montana's Perinatal Death Study. Working in cooperation with the Child Health Services division, questionnaires were prepared by this committee and sent to physicians to get information on fetal and neonatal deaths in the state. Approximately 70% of the questionnaires sent out in this study have been completed and returned to this



**INDIAN MOTHERS**—Indian mothers on the Crow Agency reservation in Big Horn county are fast realizing the importance of medical supervision to keep their children healthy. Mothers and children pictured here are waiting to see Dr. B. K. Kilbourne, District Health Officer, at one of the periodic Well Child Conferences on the Crow reservation.

office. But, again, staff shortages in this office have not permitted review and study of these questionnaire-reports. More demanding work has not even permitted gracious answers to these physicians' cooperative assistance. The need here is for a pediatric consultant.

#### **Newborn, Premature**

Cooperation of the Montana Medical Association and especially the Maternal and Child Health Committee of the MMA has been a major factor in this division's work to improve the care for the newborn and premature. Postgraduate medical courses were provided physicians in 12 Montana communities on this topic by joint sponsorship of this division with the MMA committee.

Training courses, in care of the premature, were conducted in Billings and Butte under a grant from the U. S. Children's Bureau. Similar courses are planned for other sections of the state. These courses provide instruction for both hospital nurses and public health nurses in hospital and home care of the premature and newborn. Nurses trained at these centers are aiding in presenting current information and techniques to nurses at local training centers.

A new type incubator is now being loaned, on a demonstration basis, to hospitals throughout the state in order that staffs can become familiar with this new equipment. The short loan also permits hospital administrators to determine the equipment's adaptability to the hospital's needs. With a jet-mist attachment, this incubator is proving very effective in combating certain types of respiratory infections and complications that often proved fatal. This incubator, like the many incubators on permanent loan to hospitals throughout the state, is available for emergency use at other hospitals.

Infant death tabulations in this division continue to be of assistance in quick-spotting nursery problems. Recently this procedure alerted the Board of Health to an epidemic condition in the nursery of a Federal hospital. Consultant service from this office assisted the hospital in reviewing its nursery procedures and the conditions were quickly corrected.

#### **Prevention of Blindness**

Silver nitrate is supplied to physicians and hospitals, without charge, for use in the eyes of the newborn to prevent blindness.

#### **Institutional Health Supervision**

Insufficient staff does not permit this division to do an effective job of meeting its responsibility of supervising the health of children in state institutions. These children need, and deserve, as much—if not more—health supervision than the child in the private home.

Studies indicate the danger of expensive and fatal infections and emotional involvements associated with placing children under two years



**FUN WHILE LEARNING** — Occupational therapist Mrs. Irene Restad (right) shows 10-year-old Sharon Marie Rose, Great Falls, and public health nurse Madeline Highbaugh, Hardin, how to have fun weaving, an activity designed to develop muscle control and re-education. Learning to do ordinary, everyday things—eating, buttoning clothes, sitting—often will require weeks, even months of effort and training at the Montana Cerebral Palsy Center in Billings.

of age in state institutions. In line with these findings, many states now have legislation that prohibits placing children under two years in institutions. Children in this age group should be in foster homes. Montana does not have such legislation.

Yet, in face of this grave responsibility, the Child Health Services division is without enough staff to visit all of the state institutions for children. Staff from the division of Environmental Sanitation reviews sanitation conditions at these institutions, but often are unable to make follow-up visits to assist in correcting sanitation problems. Appropriations for these children's institutions have been inadequate to comply with most of the recommended sanitation corrections.

#### **School Age Child**

Extramural postgraduate courses for teachers, physicians and nurses were conducted in Kalispell, Missoula, Anaconda, Helena, Great Falls and Bozeman on "Health of the School Age Child." The courses were conducted by a distinguished, out-of-state authority and staff members from the Dept. of Public Instruction and the Board of Health for local physicians, school administrators and public health personnel.

The Joint Staff Committee (Dept. of Public Instruction and Board of Health) has been active in fields of common interest: School and Community Health workshop at Montana State University; planning conferences for health education teachers in teacher-training institutions; recommending a state-wide speech and hearing program—to be initiated in the next biennium; developed advisory statements on "School Snack Bars" and "School Environment."

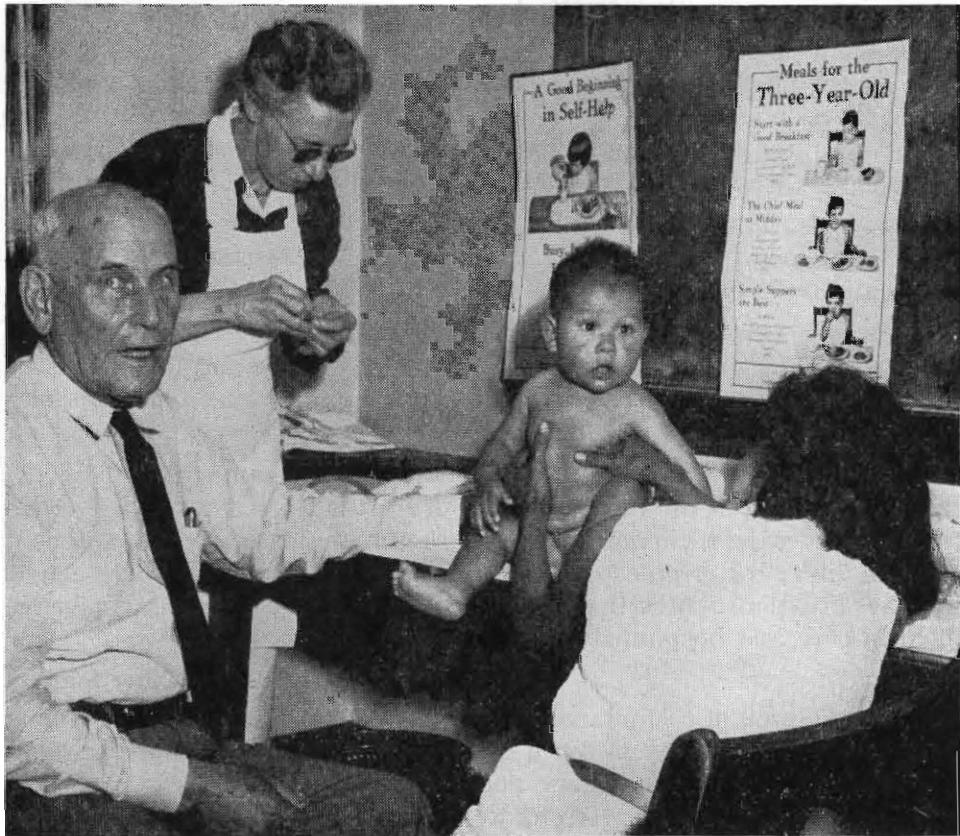
A discussion of school health services was presented at the State University, Missoula. Demonstrations were presented by this division for the students at Western Montana College of Education, Dillon, and Eastern Montana College of Education, Billings, to show how the physician counsels with the mother in developing optimum health for the child before the child starts to school.

#### **Polio Vaccine, Gamma Globulin**

This division assisted in planning, organizing and conducting county-wide programs for administering polio gamma globulin in Custer and Park Counties for all children (under 15) as passive immunization against paralytic polio in face of threatening epidemics in the counties. Assistance was extended local health departments administering polio vaccine in the field trials conducted in Missoula, Mineral, Park and Gallatin counties.

#### **Cleft Palate Center**

Through the efforts of this division a four-man team of specialists from the Illinois Cleft Palate Center was brought to the state to conduct



**WELL CHILD SUPERVISION**—Child health conferences by the local health department are designed to encourage medical supervision of the well child. The idea of waiting until the child is ill before placing it under medical supervision has been proved dangerous as well as expensive. Dr. B. K. Kilbourne, District No. I health officer, examines an Indian baby and tells the mother how to keep the healthy child well.

a two-day cleft palate workshop for Montana dentists, physicians, nurses and speech correctionist. This course should contribute greatly to improving cleft palate care—a work that requires the best of coordination and cooperation between specialists.

#### Heart Care

Congenital heart surgery cases have had to be sent to Denver, in the past. Plans are now being developed to take advantage of medical facilities and personnel in Great Falls for much of the congenital heart surgery. This will be a great saving to parents in transportation costs.

Montana's Rheumatic Fever Center in Great Falls is conducted

through this division. This Center provides diagnostic and consultative services, to physicians upon request, for congenital heart conditions as well as rheumatic fever cases. Physicians now better understand the services available at the Center and the objectives of the program. This is evident in the caseload of the center increasing several times over since the program was started in 1950.

Started originally as a pilot program serving only the Great Falls area, the value of the program has now been demonstrated and provides diagnostic and consultative services to the entire state.

There were a total of 117 patient visits in this report period under the rheumatic fever program. These included 85 old cases and 32 new cases. Of the new cases, 14 were rheumatic fever and 18 were children with congenital hearts.

Following the public health philosophy of prevention when possible, this division will in the future provide drugs that have been found effective in preventing recurrent attacks of rheumatic fever in cases accepted for care under the crippled children's program. In providing these drugs, in those situations where they could not otherwise be afforded, expensive medical care and hospitalization can be avoided.

#### **Other Surgery**

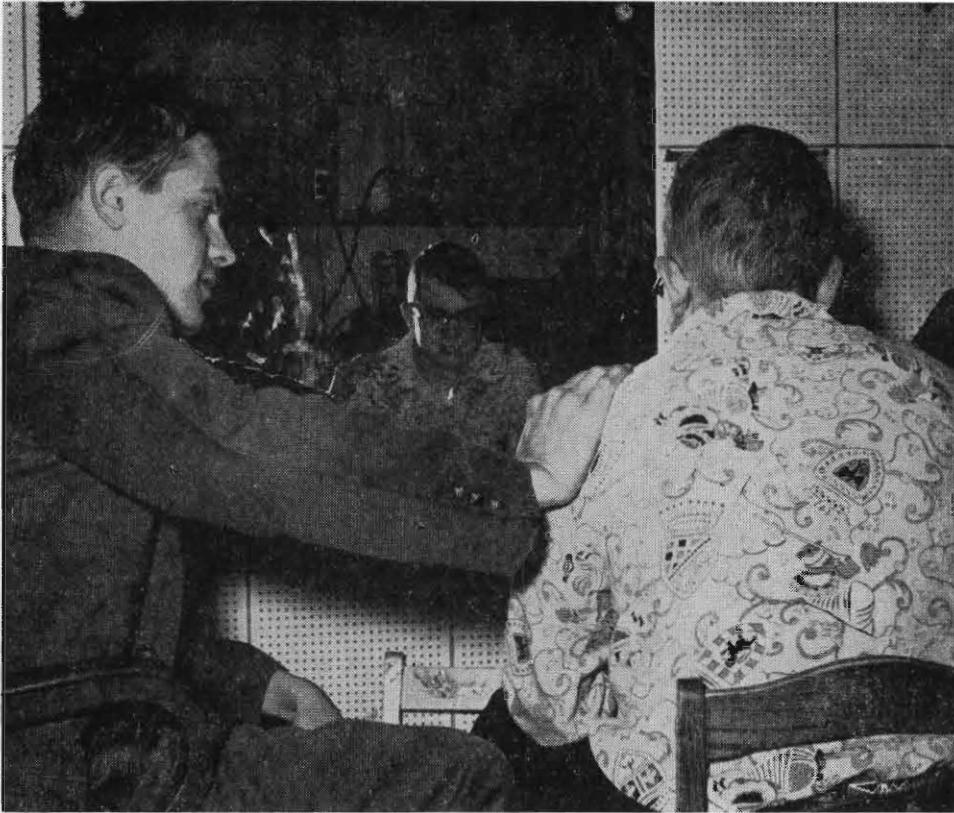
The addition of a Montana plastic surgeon to the staff of consultants has increased the ability to serve this type of case. Most congenital malformations of the genitourinary and gastrointestinal systems may now be cared for in Montana. Heretofore, care was provided to only a few cases because of the expense of out-of-state care.

#### **Cerebral Palsy**

Facilities at the Montana Cerebral Palsy Center at Eastern Montana College of Education limits the enrollment of about 35 cerebral palsied children for regular day care and training. It is estimated there are 750 cerebral palsied children in Montana; of this number less than 300 are known and are on the Crippled Children's register. Approximately 100 of these children are cared for at the Center; either enrolled for regular day care and training or seen by the Center's staff on an out-patient basis.

The Center is cooperatively sponsored and financed by Eastern Montana College of Education, the Montana Society for Crippled Children, State Board of Health, and the Billings School District. The Board of Health Budget provides for most of the Center's health services.

Admission to the Center is based on the answer to three questions: Can the Center staff be of any help to this child, and do we have room for the child? Will the child's community be able to follow through with care, if needed?



**SPEECH ASSISTANCE TO PALSID CHILD**—A speech correctionist at the Montana Cerebral Palsy Center, Billings, works with a cerebral palsied child before a mirror in an effort to improve the child's speech.

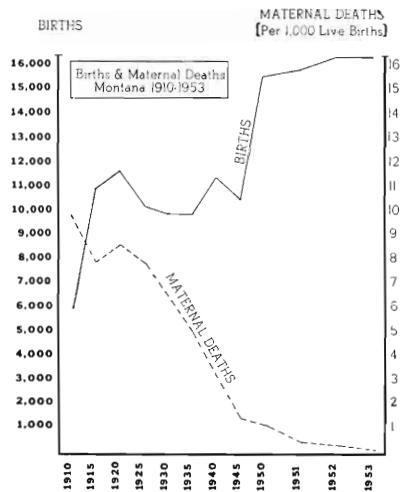
Another limiting factor in the Center's service is the need for more local public health nurses. A local public health nurse is essential to the continuation and follow-up of the child's training after he is released and returned to his home. Without a local public health nurse to follow through with the child's care and training, the work at the Center is wasted. Cooperation with the local school system is, also, essential to insure educational follow-up for the child after he returns from the Center.

#### **Crippled Children's Clinics**

Crippled Children's Clinics, providing diagnostic services for any child believed to have a crippling condition, are conducted each spring and fall by this division in 16 Montana communities. The heavy caseload (approximately 2,000 children) of these clinics somewhat restricts the services that can be extended. A reduction in the caseload would permit attention to better over-all health supervision and health guidance: this

would include encouraging parents to see their family physician periodically for nutritional guidance, immunizations and other medical care essential to improved over-all health supervision. Often the care of the crippling condition is hampered by the failure to have more complete supervision of the child's total health.

In this biennium a total of 4,053 children were seen and examined at the spring and fall crippled children's clinics. The 3,035 children treated under the crippled children's program in this biennium included 14 for tuberculosis; 290 polio; 280 cerebral palsy; 21 rheumatic fever; 99 cleft palate and harelip; 24 congenital heart; 2,306 orthopedic conditions (flat-foot, spina bifida, curvature of the spine, etc.).



#### MATERNAL DEATHS AT RECORD LOW

**LOW** — Montana's maternal death rate has been cut from 10.1 (per 1,000 live births) in 1910 to a record low of 0.2 in 1953. In this same period the number of births recorded in the state has increased from 6,124 births in 1910 to 16,456 births last year.

## DENTAL HEALTH

**Allen T. Willis,  
director**

**GETTING READY FOR SCHOOL** — Dr. R. C. Bellingham, Great Falls-Cascade County health department dentist, examines a child as part of the health department's required pre-school examination. Dr. Bellingham explains the child's dental needs to the mother and suggests she make an appointment with the family dentist for the needed care before the child starts to school.



For ten months of the two-year report period this division was without a division director. From the time of Dr. F. I. Livingston's resignation, September 1953, until Dr. Allen T. Willis filled the position, June 1954, the dental health program was continued under the direction of the Board of Health's executive officer.

New program plans and developments were still in the formative stage, under the division's new director, as this biennial ended. As a basis for measuring accomplishment, it is planned to attempt to go back to the fundamental problems that make a dental program necessary. With the cooperation of other divisions of the Board of Health, the Dental Division, in conjunction with the Montana State Dental Association, will initiate and develop dental health programs designed to protect, promote and enhance the dental health of all Montanans. Wherever possible, the most effective dental public health prevention methods will be utilized to achieve the objective, in preference to treatment of disease conditions already present.

Basic needs, to be explored and around which definite program plans will be developed, will include: dental caries; periodontal disease; congenital oral defects; oral cancer; malocclusion; the fluoridation of communal water supplies; and health education as related to the entire

program. New emphasis will be placed on using facilities and personnel of the board's divisions of Public Health Nursing and Health Education.

Not only the Division of Dental Health, but the entire State Board of Health, allied agencies and the dentists of Montana are deeply concerned about the widespread prevalence of dental caries. Dentists are often asked by anxious parents, "What can be done to build better teeth and to prevent so much tooth decay?" It is best to consider the problem in its several phases: proper water supply; adequate diet; reduced sugar intake; daily home care; and regular dental visits.

Another dental problem results from cleft lips and cleft palates. This congenital defect is more common than most people suspect. In the nation, about one of every 800 live births involves such an affliction. Oral cancer is another problem that may have considerable importance in a community. Fourth on the list of hazards to dental health is malocclusion (malposition of the teeth); other hazards to dental health might include diseases of the supporting tissues of the teeth, lack of facilities for training personnel and dental hazards peculiar to certain areas.

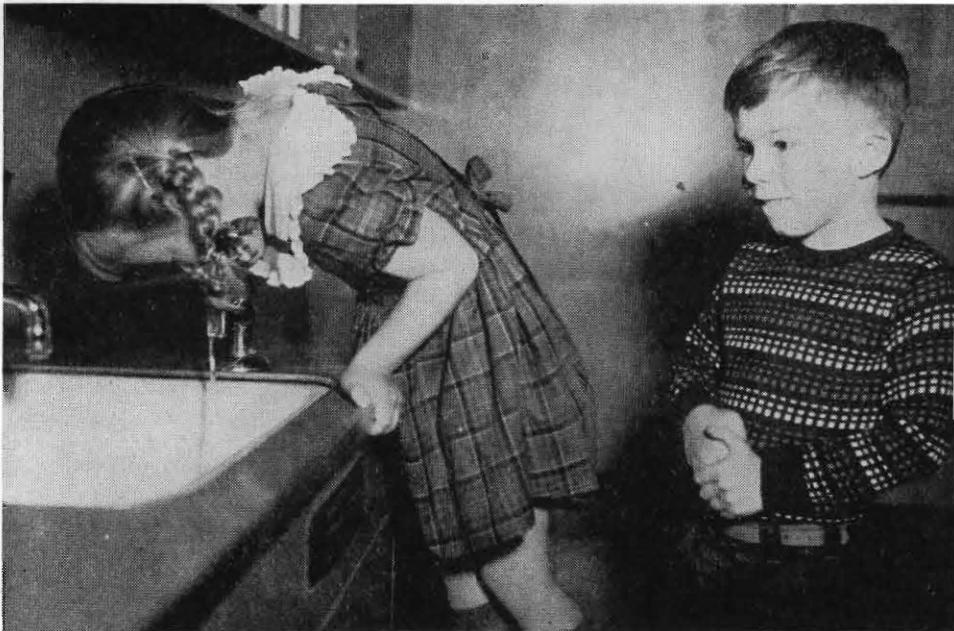
The mobile dental unit was not used in this biennium.

#### **Fluoridation**

In this biennium two more Montana communities, Bozeman and Fort Belknap Consolidated Indian Agency, instituted fluoridation of their community water supplies to reduce dental decay. With Roundup and Chinook, there are now four Montana communities utilizing this public health measure for lowering the incidence of dental caries.



**DENTAL DEMONSTRATION**—A dentist demonstrates the dental examination aspect of a "Pre-school Examination" presentation at the 35th annual meeting of the Montana Public Health Association in Lewistown, April 24-25, 1953.



**DRINKING AWAY DENTAL DECAY**—Jo Ellen Hamilton gets a drink of water at a Bozeman grade school fountain as David Schunke waits his turn. Children drinking water from the Bozeman public water supply lines are now enjoying the benefits of controlled fluorides in their water for the partial control of dental decay. Adding fluorides to community water supplies have resulted in up to 65 per cent reduction in the rate of dental decay. Approximately 270,000 Montanans drink water containing natural fluorides.

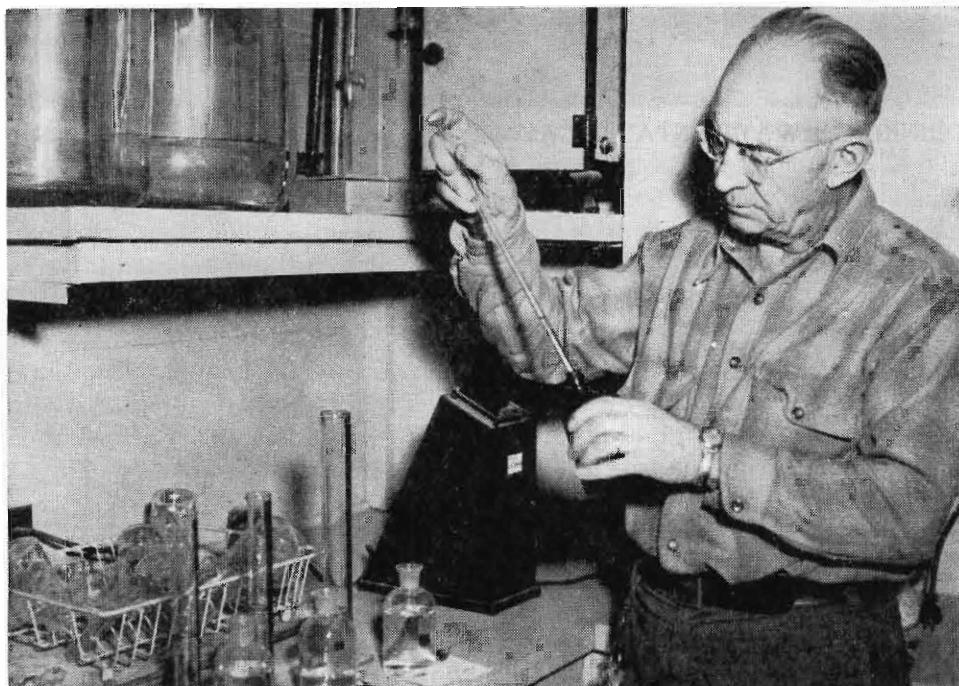
Other Montana communities have shown interest in fluoridation and are now considering the measure for their public water supplies. These include: Polson, St. Ignatius, Missoula, Superior, Miles City, Browning, Conrad, Shelby and Butte.

Promoting fluoridation of community water supplies is a basic community problem. Fluoridated water involves everyone that uses the community's public water supply: all ages, groups and races are concerned. Local dental societies, civic organizations and other public agencies receive help from this division in developing local interest in fluoridation. Talks, sound and color movies, printed literature and the most recent scientific findings on the use of fluorides for the partial control of dental decay are available through this division. In those areas contemplating fluoridation in the near future, this division plans to promote surveys of the dental condition of children in the school system and, when possible, children of pre-school age.

The Dental Division is responsible for the over-all planning and



**BOZEMAN FLUORIDATION** — William Border, Supt. of the Bozeman Water Dept., keeps close check on the fluorides added to the public water supply as a public health technique of reducing dental decay. Border runs a test on a sample of water to be sure the fluoride content is maintained at 1 part per million parts of water. Bozeman's public water supply has had controlled fluorides added since July of 1953.



operation of fluoridation activities, but the services of other divisions are also required, particularly health education for the preparation and use of educational materials, environmental sanitation for the engineering phases of local installation and operation, and the chemistry laboratory for chemical analysis of public water supplies.

### **Child Health Services**

Dentists throughout the state agree the pre-school and school health dental programs are proving effective. The school dental health program of this division was initiated in the 1947-48 school year.

In the school year 1952-53, 812 schools with 43,853 pupils in 47 counties participated in the school dental health program. The following year the school dental health program included 528 schools, in 45 counties, with 42,920 pupils taking part.

Materials for the school dental health program are distributed through the division of Health Education to school personnel, public health nurses and health officers, who in turn supply the materials to local schools when requested.

### **Postgraduate Education**

For seven years the State Board of Health, through this division, has provided educational stipends for Montana dentists to take post-graduate studies in specialized fields of dentistry. Upon their return from these studies, the dentists present lectures at their local dental society meetings on the topics covered in the postgraduate studies.

In July of 1953, three Montana dentists attended a six-day post-graduate course in dentistry for children at the College of Physicians and Surgeons, San Francisco, under this education program. Ten dentists attended a similar course at the University of Oregon Dental School, Portland, in June of 1954.

This brings to 45 the total number of Montana dentists who have taken specialized postgraduate studies in children's dentistry and 5 who have taken postgraduate study in oral cancer diagnosis since the State Board of Health program was initiated seven years ago.

### **Dental Caries Survey**

During this report period an extensive survey was made of the dental caries experience of native born and reared Montana college freshmen and adolescents. The survey was conducted by Lura M. Odlund, Ph.D., and Louise Page, M.S., Montana State College, and Stanley T. Dohrman, D.D.S., Great Falls. The executive officer to the State Board of Health served as consultant to the study.

The survey report reveals a reduction of dental caries due to fluoridation. One sample was taken from Bozeman, where controlled fluoridation was not in operation at the time; the other sample was taken from Great Falls, which has an average of approximately 0.9 p.p.m. of fluoride in the public water supply. Additional information on this survey is available from Dr. Odlund, Dept. of Home Economics Research, Montana State College, Bozeman.



## DISEASE CONTROL

G. D. Carlyle Thompson,  
acting director

L. S. McLean,  
director Tuberculosis Control  
& Chest X-Ray Survey

**POLIO VOLUNTEER** — A volunteer nurse prepares a Missoula grade-school child's arm for an injection in the field testing of the new polio vaccine in the spring of 1954. Results of the field testing of the vaccine are expected to be known by the spring of 1955.

The responsibilities of this division are broad. They include acute communicable diseases, venereal disease, tuberculosis, cancer, heart disease, industrial health, and any other disease conditions or situations affecting human health that require study, investigation and control methods.

The practicing physician is an essential factor in all the division's work. It is necessary to obtain his closest cooperation.

The work of the division also requires the services of other divisions, particularly Public Health Nursing, Environmental Sanitation, Health Education, Vital Statistics and the Bacteriological and Chemical Laboratories.

Because of the inability to secure staff, the division still faces completion of the post-war adjustment which the Board's internal reorganization of 1950 set in motion.

The shortage of medical and engineering personnel in this division has made it impossible to attend to many important problems or to adequately do work needed. Montana's salaries for these workers has not been adequate to attract enough competent people. Since June of 1952, the position of director of the division of Disease Control has been vacant. In addition to his other duties, the Executive Officer has carried out as many of the duties of that position as possible. Likewise, the position of

assistant director has been vacant since June of 1953. The director of Child Health Services and of Local Health Services also assisted in the work of this division during the biennium. The Director of Local Health Services has been fully responsible for the chest X-ray survey and tuberculosis control programs since June of 1953.

The program and work for the next biennium can be expected to remain unchanged except for the chest X-ray survey, and general improvement, if proper medical and engineering staff are secured. This will be discussed fully under specific disease control headings.

Even with the lack of necessary staff for adequate functioning of this division, it has become readily apparent that proper disease studies are handicapped by inadequate statistical analyses and data which, to date, the budgeted staff positions could provide. This is also a problem of other divisions. To meet this problem, this division, along with the Division of Child Health Services, is planning to secure a statistician specially prepared in handling public health and disease data.

#### **Acute Communicable Disease Control**

The basic elements of acute communicable disease services were maintained, although adequate state assistance in many local disease situations was not possible. Better acute communicable disease control work will be done locally when the state staff is adequate to give better consultation and direct local assistance.

However, some real progress is noted. New reportable disease rules and regulations were developed by the staff and adopted by the board. Individual disease report cards for use by physicians were revised and put in use.

New stress was given to the confidential nature of physicians' reports and more complete reporting by physicians was encouraged. While reporting is still not good, it has greatly improved.

**Typhoid** reached a low point of only 5 cases each year in this biennium. Diphtheria did likewise with 14 and 19 cases in the two years. Epidemic (meningococcus) meningitis showed a substantial rise to 19 and 26 cases, the highest since 1945. While special effort was made to secure prompt and effective local prophylactic measures, the rise in this disease presented a real concern to the state staff as each sporadic local outbreak occurred.

Once again Montana failed to achieve a satisfactory record for **smallpox** in a biennium. One case occurred in 1952. However, 1953 made Montana's 4th year on record that was free of smallpox. The state staff joined in a vigorous local program when the one case occurred.

**Measles** occurred in high incidence for each of the two years, the

highest since 1947. Part of this increase is believed due to better physician reporting under the new rules and regulations. With immune serum globulin (measles gamma globulin) unavailable on the commercial market during the biennium, this division handled the board's responsibility for the distribution of Montana's share of the national gamma globulin pool, controlled by the U. S. Office of Defense Mobilization and the U. S. Public Health Service. Criteria for the use of measles gamma globulin were developed in cooperation with the Montana Medical Association.

During the two years, 5,097 two-cubic centimeter vials of measles gamma globulin were distributed to Montana physicians for the prevention or modification of measles, German measles in pregnancy, and infectious hepatitis. This is three to five times the quantity distributed in former years, when the American Red Cross furnished measles gamma globulin to the board for distribution to physicians.

The refrigeration, packaging and shipping was performed by the Bacteriological Laboratory.

**Infectious hepatitis** showed an increase during this period as elsewhere in the United States. As noted above, measles gamma globulin was distributed for control purposes. One small community had a community-wide program when the county Health officer offered a prophylactic dose to everyone. This work in Montana is confirming what had only recently been noted in recent research studies: gamma globulin is effective in controlling this disease.

**Poliomyelitis** (infantile paralysis) placed heavy demands on the state staff during this period and will continue to do so in the future. The use of poliomyelitis immune globulin (polio gamma globulin), as a result of the National Foundation for Infantile Paralysis research in other states in the control of paralytic polio, was a national and state problem of major proportions. Polio gamma globulin came under the Office of Defense Mobilization control, as did gamma globulin for measles. Criteria for its use were established. Because of the small amount available to Montana, it was necessary to set up a 24-hour system in Helena for meeting the need throughout the state. For this, special delivery, 1st class registered or airmail was required. Frequently the State Highway Patrol assisted. Decentralization to county health officers became possible toward the end of the biennium, when the state's allotment was larger.

During the 1953 polio season, two county-wide mass immunization programs were carried out under the direction of this division with assistance from Child Health Services, Public Health Nursing, and Health Education staff. This utilized 53,840 cc's of **polio gamma globulin** for 7,080 children under 15 years of age in Park and Custer counties when

the occurrence of polio in these counties met national criteria for a mass immunization program. In both counties, physicians, nurses, hospitals, the National Foundation for Infantile Paralysis and the American Red Cross chapters and many organizations and persons rendered unusual service to their communities. Without this assistance, the state staff could not have functioned.



**MASS IMMUNIZATION**—In August of 1953 all children (14 and under) in Park county were immunized, with gamma globulin, against the paralytic effects of polio. The action was taken in the eve of a threatening polio epidemic in the area. The following month a similar mass immunization program was conducted in Custer County. A volunteer physician and volunteer nurses are pictured above administering polio GG in the program in Livingston.

Polio incidence was the highest in each of these years (260 in 1952 and 251 in 1953) since 1934 when 321 cases occurred. Fiscal 1954 threatens to be an equally high year from the first 6 months reports (41 cases).

(During 1953, 600 cc's of polio gamma globulin were distributed for the treatment of agammaglobulinemia, a rare blood disease, which can be successfully treated only with this substance.)

#### **Polio Vaccine Field Trials**

In April of 1954, Montana became one of 11 states eligible to participate in the nation's controlled polio vaccine field trials. Another 38 states participated in the testing of the new Salk vaccine, but without the control feature used in Montana.

Montana counties (Mineral, Missoula, Gallatin and Park) were chosen after a careful study of all polio data and the national criteria for selection of test areas.

While the vaccine program was under direction of this division, responsibility for the direct operation was delegated to Dr. Mary E. Soules, Public Health District No. 3 health officer for Mineral and Missoula Counties and to Dr. Carl W. Hammer, Gallatin County health officer for Gallatin and Park Counties.

The program included all 1st, 2nd and 3rd graders. Half received vaccine and half an inert substance. The identity of the injection will be known only by a code number until April, 1955, when the results of the study will be released. The work also required the collection of blood specimens on a substantial number of these children at three periods: before the injection was given; one month after the last of the three injections; and again several months later. The study also involved an extensive investigation of every case of polio occurring in the area after the first injection, including all members of the family. On these persons, blood and stool specimens are to be collected for laboratory analysis.

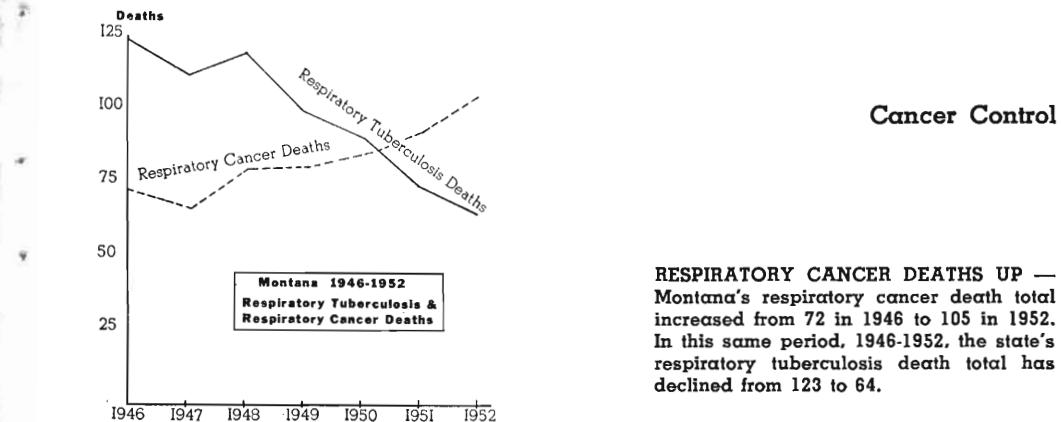
At the close of the biennium, both the gamma globulin and vaccine programs had operated without any conflict. While the volume of work was heavy, the division is glad to have had the opportunity to participate in these two programs, carrying so much hope for so many.

#### **Venereal Disease Control**

Venereal disease continues to be reported at a low rate. It is doubtful that the incidence is as low as reported. The division is in the process of a study which, when completed, should help settle this doubt.

Because of a venereal disease fund reduction during the biennium, the laboratory syphilology service was threatened. By revamping laboratory procedures and forms and the adoption of VDRL tests, the service was maintained.

Distribution of free drugs to physicians for venereal disease treatment (for patients unable to pay) was discontinued in July, 1953.



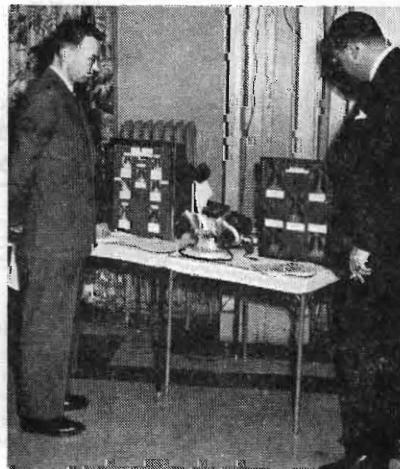
#### Cancer Control

**RESPIRATORY CANCER DEATHS UP —**  
Montana's respiratory cancer death total increased from 72 in 1946 to 105 in 1952. In this same period, 1946-1952, the state's respiratory tuberculosis death total has declined from 123 to 64.

The principal cancer work has been through the operation of the chest X-ray survey, described elsewhere in this report. The lung cancer case finding and educational aspect of the chest X-ray survey is substantial.

The state cancer register has been continued although it has not been possible to keep it complete or up-to-date. No statistical analysis of

**LUNG CANCER FINDINGS —** Dr. L. S. McLean (right), director of the Montana Chest X-ray Survey, explains to Ted Delaney, Missoula, member of the board of directors of the Montana Div. of the American Cancer Society, some of the lung cancer findings in the chest survey program. The X-ray exhibit was part of Dr. McLean's presentation at the annual meeting of the Cancer Society in Helena in March of 1954.

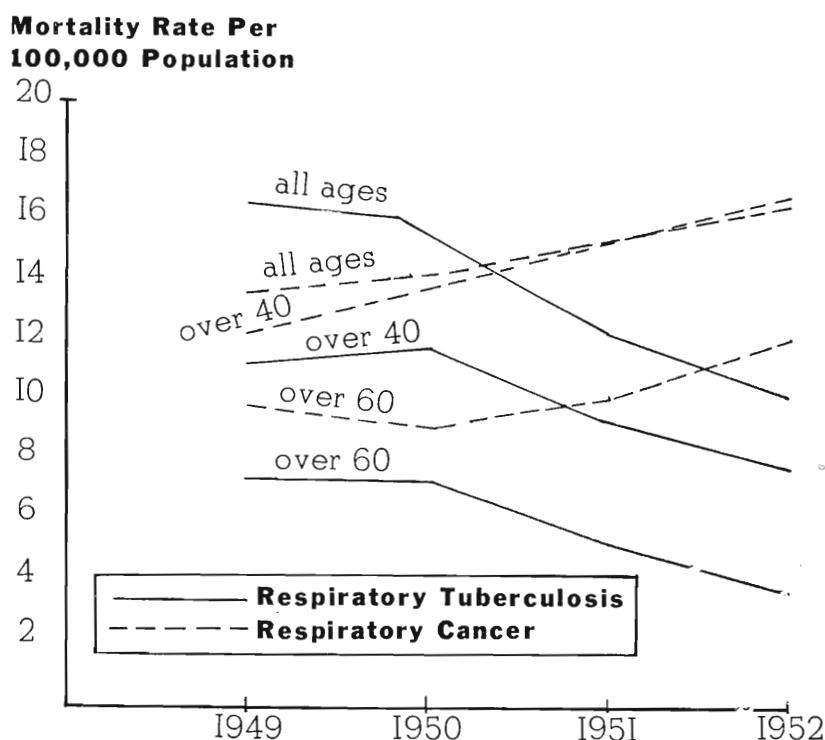


the register data has been possible. Case data is preserved and will be recorded and analyzed as soon as staff and budget permit.

The annual postgraduate cancer lectures for physicians were omitted in 1953, and in 1954 will be financed by the Montana Division of the American Cancer Society.

Distribution of the Cancer Bulletin to physicians has been maintained. Because of a budget shortage, this has been possible only on a month to month basis as funds could be saved elsewhere.

**Montana Respiratory Tuberculosis and Respiratory Cancer Mortality. By Age Groups, 1949-1952.**



**RESPIRATORY CANCER UP IN ALL GROUPS**—The above chart reflects the steady increase in Montana's respiratory cancer mortality in the age group "over 40." In the "over 40" age group in Montana, respiratory cancer took 79 lives in 1949 (a rate of 12.2 per 100,000 population); by 1952 this figure had increased to 104, a rate of 16.8 per 100,000 population in the state. Montana's respiratory cancer death rate in the "over 60" age group has jumped from 9.9 (per 100,000 population) in 1949 to 12.1 in 1952. In this same period, 1949-1952, the state's respiratory tuberculosis death rate reflects a steady decline in all age groups.

TABLE 1  
**Montana Respiratory Tuberculosis and Respiratory Cancer  
Mortality by Number of Deaths and Death Rate  
Per 100,000 Population 1946-1953**

Year	Respiratory Tuberculosis		Respiratory Cancer		Primary Cancer Trachea & Bronchus (Bronchogenic)	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
1946	123	24.6	72	14.4	1	0.2
1947	112	22.4	66	13.2	3	0.6
1948	119	20.4	78	13.4	6	1.1
1949	97	16.6	80	13.7	35	6.1
1950	95	16.1	84	14.2	28	4.8
1951	73	12.3	92	15.5	33	5.6
1952	63	12.1	103	16.6	50	8.0
1953	60	9.4	111	17.3	48	7.5

TABLE 2  
**Montana Respiratory Tuberculosis and Respiratory Cancer  
Mortality by Certain Age Groups 1949-1953**

Year	Respiratory Tuberculosis					
	All Ages		Over 40		Over 60	
No.	Rate	No.	%	No.	Rate	
1949	97	16.6	64	66	11.2	43
1950	95	16.1	70	74	11.8	43
1951	73	12.3	55	75	9.3	31
1952	64	10.3	48	76	7.7	24
1953	60	9.4	48	80	7.5	32
Year	Respiratory Cancer					
	All Ages		Over 40		Over 60	
No.	Rate	No.	%	No.	Rate	
1949	80	13.7	79	99	12.2	57
1950	84	14.2	82	98	13.9	54
1951	92	15.5	92	100	15.5	60
1952	103	16.6	104	99	16.4	74
1953	111	17.3	110	99	17.2	79

TABLE 3  
**Montana Tuberculosis and Cancer Deaths (All Types) By Number  
of Deaths and Death Rate Per 100,000 Population  
At 10 Year Intervals and Other Years 1910-1953**

Year	Tuberculosis		Cancer	
	Deaths	Rate	Deaths	Rate
1910	340	89.9	157	41.5
1912	468	113.0*	164	39.6**
1920	419	76.3	282	51.4
1930	337	62.7	424	78.9
1940	231	41.2	640	114.3
1950	114	19.3	733	124.0
1951	85	14.3	726	122.2
1952	79	12.7	778	125.5
1953	77	12.0	809	126.4

\*Highest Rate, \*\*Lowest Rate.

TABLE 4  
 Number of Respiratory Cancer Deaths and Death Rate  
 Per 100,000 Population for Montana by Counties and by  
 Sex for 11 Years, 1940-1950 inc.\*

County	Male	Female	Total	Rate
Beaverhead	3	1	4	5.3
Big Horn	4	2	6	5.3
Blaine	5	1	6	6.0
Broadwater	1	1	2	5.7
Carbon	9	1	10	8.2
Carter	0	0	0	0.0
Cascade	57	10	67	13.0
Chouteau	6	1	7	8.9
Custer	9	1	10	7.8
Daniels	1	1	2	4.2
Dawson	5	0	5	5.1
Deer Lodge	52	6	58	36.2
Fallon	1	2	3	8.3
Fergus	7	2	9	5.8
Flathead	16	4	20	6.5
Gallatin	11	4	15	6.8
Garfield	2	0	2	7.5
Glacier	3	1	4	3.9
Golden Valley	1	0	1	6.1
Granite	6	1	7	20.4
Hill	12	3	15	9.9
Jefferson	1	0	1	2.1
Judith Basin	3	0	3	7.9
Lake	5	5	10	6.9
Lewis and Clark	30	4	34	13.3
Liberty	2	0	2	8.2
Lincoln	3	1	4	4.3
Madison	5	0	5	6.8
McCone	0	2	2	5.1
Meagher	1	0	1	4.2
Mineral	0	0	0	0.0
Missoula	19	7	26	7.4
Musselshell	5	0	5	8.1
Park	7	1	8	6.1
Petroleum	2	0	2	17.1
Phillips	8	1	9	11.4
Pondera	5	1	6	7.5
Powder River	0	0	0	0.0
Powell	9	1	10	14.5
Prairie	1	0	1	3.8
Ravalli	7	1	8	5.5
Richland	3	1	4	3.5
Roosevelt	3	3	6	5.6
Rosebud	1	2	3	4.5
Sanders	11	1	12	15.7
Sheridan	0	0	0	0.0
Silver Bow	127	20	147	26.4
Stillwater	6	0	6	9.8
Sweet Grass	2	0	2	4.9
Teton	4	1	5	6.4
Toole	5	0	5	6.4
Treasure	0	0	0	0.0
Valley	4	1	5	3.4
Wheatland	7	1	8	5.4
Wibaux	0	0	0	0.0
Yellowstone	22	13	35	6.6
State	519	109	628	9.8

\*Study Completed in 1952.

**TABLE 5**  
**Number of Respiratory Cancer Deaths and Death Rate**  
**Per 100,000 Population for Montana by Certain Counties**  
**and by Sex for 11 Years, 1940-1950 inc.**

County	Male	Female	Total	Rate
Deer Lodge .....	52	6	58	36.2
Silver Bow .....	127	20	147	26.4
Lewis and Clark .....	30	4	34	13.3
Cascade .....	57	10	67	13.0
Others over 10.2*	36	4	40	14.9
Balance of Counties .....	217	65	282	6.7
State .....	519	109	628	9.8

\*Granite, Petroleum, Phillips, Powell, Sanders.

**TABLE 6**  
**Important Communicable Diseases**  
**Number of Cases Reported Each Year**

Year	Tuberculosis	Typhoid	Diphtheria	Smallpox	Scarlet Fever	Meningitis	Poliomyelitis	Spotted Fever	Measles
1920 .....	863	241	269	1,066	891	19	25	26	4,491
1921 .....	568	187	412	1,466	620	12	26	26	2,561
1922 .....	368	144	426	636	676	23	47	58	67
1923 .....	604	159	456	732	843	21	16	51	2,535
1924 .....	648	130	548	950	1,040	16	182	47	6,049
1925 .....	620	244	329	376	1,337	12	41	34	486
1926 .....	528	117	208	395	2,065	42	12	37	2,596
1927 .....	463	108	182	575	2,209	165	22	38	1,372
1928 .....	448	133	231	853	846	188	65	32	840
1929 .....	536	371	142	547	1,139	149	7	23	4,308
1930 .....	534	120	77	379	1,355	62	20	22	664
1931 .....	579	137	105	129	1,223	31	58	34	1,634
1932 .....	568	142	32	142	868	18	9	100	5,476
1933 .....	465	184	106	33	612	10	13	68	2,178
1934 .....	638	136	178	19	628	22	321	74	2,105
1935 .....	432	81	145	749	1,975	35	7	125	7,397
1936 .....	497	123	85	762	3,579	48	12	65	457
1937 .....	486	96	62	898	1,328	23	31	31	656
1938 .....	515	80	50	314	1,000	17	14	12	3,405
1939 .....	455	57	86	55	1,036	6	6	32	7,498
1940 .....	451	32	117	8	1,044	16	108	32	1,310
1941 .....	466	26	133	4	1,047	10	33	107	951
1942 .....	402	15	86	3	697	12	13	45	3,150
1943 .....	386	23	70	7	690	31	26	28	5,767
1944 .....	508	16	102	12	1,399	42	38	6	3,798
1945 .....	399	45	80	4	698	26	86	2	493
1946 .....	409	26	58	1	344	18	129	9	2,130
1947 .....	547	24	51	0	453	17	26	6	5,031
1948 .....	720	12	71	1	587	13	63	3	2,575
1949 .....	504	13	28	1	554	16	95	12	3,806
1950 .....	425	12	35	0	465	10	47	15	1,833
1951 .....	334	12	26	0	485	16	135	10	2,634
1952 .....	324	6	14	1	689	28	260	5	4,328
1953 .....	339	6	19	0	771	26	251	7	3,303

**TABLE 7**  
**Communicable Diseases reported in Montana**  
 Including Deaths from Communicable Diseases Not Previously Reported as Cases

DISEASES	1948	1949	1950	1951	1952	1953
Chickenpox -----	2,616	2,777	1,786	2,493	2,550	*41
Diphtheria -----	71	28	35	26	14	19
Dysentery, Amoebic -----	—	1	8	—	2	4
Dysentery, Bacillary -----	2	8	2	1	—	—
Dysentery, Unclassified -----	—	—	1	—	54	1
Encephalitis -----	2	11	1	5	15	23
Gonorrhea -----	244	186	170	144	170	167
Infectious Hepatitis -----	2	4	8	21	12	54
Influenza -----	470	205	5,184	1,621	3,462	7,886
Measles -----	2,575	3,806	1,833	2,634	4,328	3,303
Measles (German) -----	116	1,679	250	741	1,111	1,872
Meningitis, Epidemic -----	13	16	10	16	28	26
Poliomyelitis, Epidemic -----	63	95	47	135	260	251
Rocky Mountain Spotted Fever -----	3	12	15	10	5	7
Scarlet Fever & Septic Sore Throat -----	587	554	465	485	689	771
Smallpox -----	1	1	—	—	1	—
Streptococcal Infections ----- (Scarlet Fever, Streptococcic Sore Throat, Erysipelas, Puer- pural Sepsis)	601	566	469	488	695	771
Syphilis -----	633	361	219	172	167	93
Trachoma -----	104	1	74	10	24	47
Tuberculosis -----	720	504	425	334	324	339
Tularemia -----	13	35	31	16	19	18
Typhoid -----	12	13	12	12	6	6
Undulant Fever -----	4	12	18	9	9	8
Whooping Cough -----	339	105	614	481	76	169

\*Over age 16 only.

**TABLE 8**  
**POLIOMYELITIS**  
By Sex and Age Groups and Month of Onset

**1948**

Age	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total M	Total F
0- 9	1	3	3	1	1	1	1	4	2	8	4	2	13	18
10-19	1	2	--	--	--	--	2	3	6	4	--	13	5	18
20-29	--	--	--	--	--	--	1	2	3	3	1	--	2	8
30-39	1	--	--	--	--	--	--	2	--	--	--	1	2	3
40 & over	--	--	--	--	--	--	--	1	--	--	--	1	--	1
Totals	3	5	3	1	1	1	4	10	13	15	5	2	30	33
														63

**1949**

0- 9	--	5	--	--	--	2	8	16	9	3	1	27	17	44
10-19	1	--	--	--	--	3	6	8	2	3	--	11	12	23
20-29	--	--	--	--	--	1	7	2	5	--	--	12	3	15
30-39	--	--	--	--	1	1	--	6	--	2	1	8	3	11
40 & over	--	--	--	--	--	--	2	--	--	--	1	1	1	2
Totals	1	--	5	--	--	1	7	23	42	16	8	2	59	36
														95

**1950**

0- 9	--	1	1	--	--	1	5	7	4	2	6	1	20	8	28
10-19	--	--	--	--	--	1	1	2	3	4	--	4	7	11	
20-29	--	--	--	--	--	--	3	--	1	--	--	1	3	4	
30-39	--	--	1	--	--	--	1	--	--	--	--	1	1	2	
40 & over	--	1	--	--	--	--	--	1	--	--	--	1	1	2	
Totals	--	1	3	--	--	1	6	12	7	6	10	1	27	20	47

**1951**

0- 9	--	1	--	--	3	15	31	15	9	1	49	26	75		
10-19	--	--	1	--	1	6	10	5	7	--	16	15	31		
20-29	--	--	--	--	1	--	2	13	2	1	2	7	14	21	
30-39	1	--	--	--	--	1	--	--	--	--	2	--	2		
40 & over	1	--	--	--	--	--	1	--	--	--	1	1	1	2	
Age unknown	--	--	--	--	--	--	3	--	--	1	1	3	4		
Totals	2	--	1	1	2	--	5	24	57	22	17	4	76	59	135

**1952**

0- 9	--	1	--	--	1	13	15	30	44	23	7	1	83	51	134
10-19	1	1	--	--	2	7	9	18	18	9	4	2	41	30	71
20-29	--	--	--	--	--	--	2	4	13	6	5	--	10	19	29
30-39	--	--	--	--	--	1	2	4	5	2	--	4	10	14	
40 & over	1	--	--	--	--	--	2	2	1	1	--	4	4	8	
Age unknown	--	--	--	--	--	--	--	--	3	1	--	1	3	4	
Totals	2	1	--	--	3	20	27	56	81	47	20	3	143	117	260

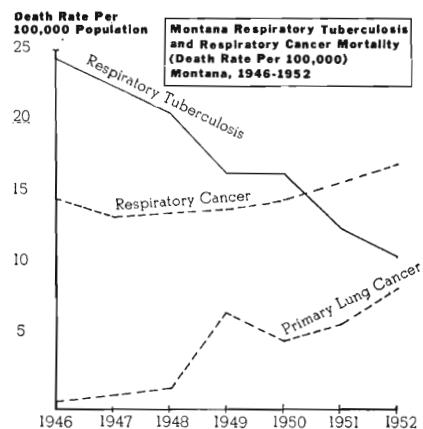
**1953**

0- 9	--	1	--	--	3	1	13	37	26	8	15	3	58	49	107
10-19	4	1	3	--	--	--	7	13	24	11	8	6	36	41	77
20-29	4	--	--	--	--	--	6	7	13	4	2	1	19	18	37
30-39	--	--	--	--	--	3	2	10	3	4	2	14	10	24	
40 & over	--	--	--	--	--	--	2	1	--	--	1	4	0	4	
Age unknown	--	--	--	--	--	--	--	1	1	--	--	1	1	2	
Totals	8	2	3	--	3	1	29	61	75	27	29	13	132	119	251

**TABLE 9**  
**SYPHILIS**  
By Color, Sex, Age Groups and Stage of Disease  
1948

Age Group	WHITE						NON-WHITE						
	Male			Female			Male			Female			
	Primary and Secondary	Tertiary	Congenital	Unknown	Total	Primary and Secondary	Tertiary	Congenital	Unknown	Total	Primary and Secondary	Tertiary	
<b>1948</b>													
0-14	--	1	--	1	1	4	--	5	1	6	1	8	2
15-24	21	4	2	1	28	9	9	2	--	20	17	6	1
25-39	38	20	1	1	60	15	54	--	69	6	13	--	1
40-59	12	57	--	--	69	3	36	--	1	40	--	15	1
60 & over	1	22	--	--	23	--	11	1	--	12	--	5	--
Age unknown	11	25	--	2	38	1	14	--	1	16	4	6	--
TOTALS	83	128	4	4	219	29	124	7	2	162	28	45	8
<b>1949</b>													
0-14	--	4	--	4	--	1	2	--	3	--	2	1	2
15-24	6	6	--	--	12	4	10	2	--	16	3	6	1
25-39	8	26	1	--	35	8	32	--	40	1	11	--	12
40-59	9	57	--	1	67	1	28	--	29	1	4	--	5
60 & over	2	23	--	--	25	--	2	--	2	--	4	--	3
Age unknown	1	16	--	--	17	1	12	--	3	16	--	4	--
TOTALS	26	128	5	1	160	14	85	4	3	106	5	29	3
<b>1950</b>													
0-14	--	5	--	--	8	1	6	1	--	8	1	5	1
15-24	5	3	--	--	19	3	11	--	1	15	5	7	--
25-39	9	6	--	4	19	3	11	--	1	11	--	12	8
40-59	3	15	1	1	20	1	18	--	19	1	11	--	13
60 & over	2	8	--	1	11	--	9	--	9	1	1	--	2
Age unknown	2	5	--	1	8	2	3	--	5	--	1	--	3
TOTALS	21	37	1	7	66	7	47	1	1	56	8	25	1
<b>1951</b>													
0-14	--	--	--	--	--	1	--	--	1	--	1	1	--
15-24	--	1	--	1	2	1	3	2	--	6	1	4	1
25-39	1	6	--	4	11	4	13	2	--	19	1	7	--
40-59	1	18	--	3	22	3	10	--	13	--	8	2	13
60 & over	9	9	--	5	--	5	--	5	--	8	3	2	--
Age unknown	1	4	--	1	6	--	4	1	--	5	2	3	--
TOTALS	3	38	--	9	50	8	36	5	--	49	4	26	2
<b>1952</b>													
0-14	--	3	--	--	4	--	--	--	--	1	1	--	1
15-24	3	1	--	--	4	--	--	--	--	1	1	5	--
25-39	4	3	--	1	8	2	8	3	1	14	--	10	--
40-59	1	14	--	7	22	6	12	--	4	22	1	3	--
60 & over	2	5	2	6	15	--	3	--	3	--	1	2	--
Age unknown	2	6	--	1	9	1	7	--	8	--	1	--	1
TOTALS	12	29	2	15	58	9	30	3	5	47	1	19	1
<b>1953</b>													
0-14	--	--	--	--	1	--	--	1	--	1	1	--	--
15-24	1	--	1	2	--	2	--	2	--	1	2	--	5
25-39	2	1	--	3	--	3	1	2	6	--	3	1	4
40-59	1	6	--	4	11	--	9	--	1	10	--	5	10
60 & over	--	3	1	2	6	--	3	--	1	4	--	4	8
Age unknown	--	3	--	3	--	2	--	2	--	2	1	1	--
TOTALS	2	14	2	7	25	--	20	1	4	25	--	12	1

## Tuberculosis Control



**CANCER-TUBERCULOSIS TREND** — Montana's respiratory cancer death rate has increased from 14.4 (per 100,000 population) in 1946 to 16.9 in 1952. In this same period, 1946-1952, Montana's respiratory tuberculosis death rate has declined 24.6 (per 100,000 population) in 1946 to 10.3 in 1952. In 1946 respiratory cancer claimed 72 lives in Montana; in 1952 it was responsible for 105 deaths.

Major emphasis in the Tuberculosis Control program was directed at reducing the occurrence and prevalence of tuberculosis in this state through case finding and case supervision activities.

Case finding through the better publicized and more dramatic intensified chest X-ray survey project, which began in November, 1952, by necessity required the major effort of the staff. Toward the end of the biennium, improvements in procedures for case supervision became possible through increased utilization of public health nursing services and through the development of professional service committees in local areas as part of the follow-up phase of the chest X-ray survey. A major portion of the improved procedure was in connection with the tuberculosis case register.

A primary requisite to good tuberculosis case supervision is the collection of pertinent factual information on all reported and known cases among resident and non-resident persons in the state. The maintenance and operation of a tuberculosis case register facilitates the current collection of such information and its disposition to official, private and voluntary agencies throughout Montana, as well as to other states and the Federal government.

The tuberculosis case register, as of June 30, 1954, carried current case records on 902 Montanans. Of these, 400 had active or questionably active tuberculosis and 502 were tuberculosis cases declared inactive for less than two years.

Of these 400 cases, 221 were in sanatoria or the tuberculosis section of hospitals and 179 were classified "at home." For many of these latter non-hospitalized cases, in a communicable stage of their disease, individualized management does not exist to adequately insure them and their family and neighborhood contacts against spread of their infection. Many

factors underlie the presence of this health hazard in our communities, but one of the most significant is the insufficiency or total lack of local qualified public health services.

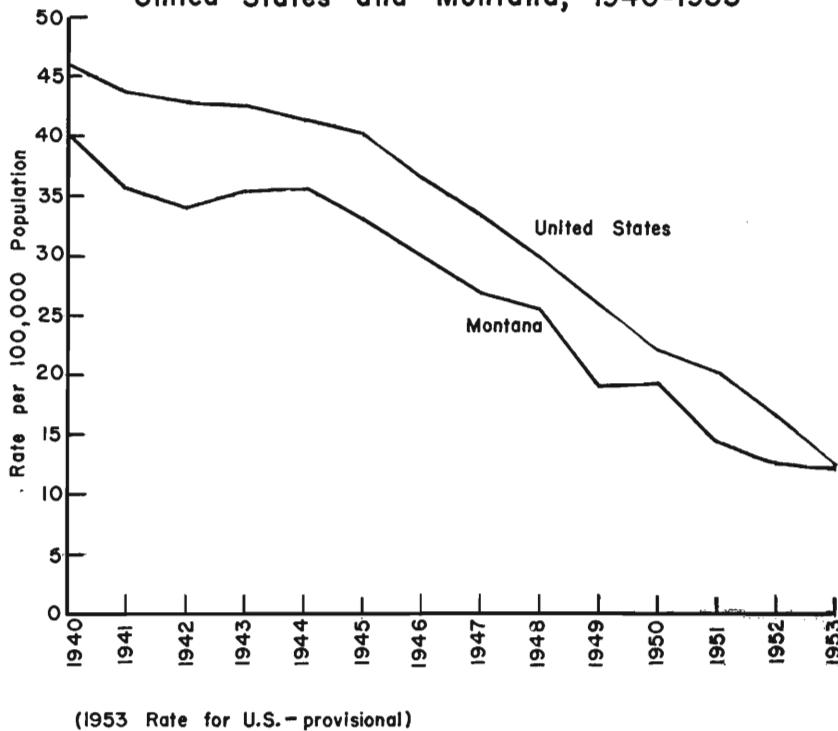
339 new cases of tuberculosis were reported throughout calendar year 1953 compared to 324 during the similar 12-month period in 1952. Table I presents a summary regarding the source of these reports and indicates continuation during this biennium of the upward trend in physician notification. In large measure, this upward trend in both total number and physician source of reported cases is considered directly related to the evident impetus given to early case finding by the Montana Chest X-ray Survey.

In 1925, for every death from tuberculosis in Montana, only 1.56 cases were reported to the State Board of Health. By 1953, this ratio had improved to 4.4 cases being reported for each death (Table II). A total



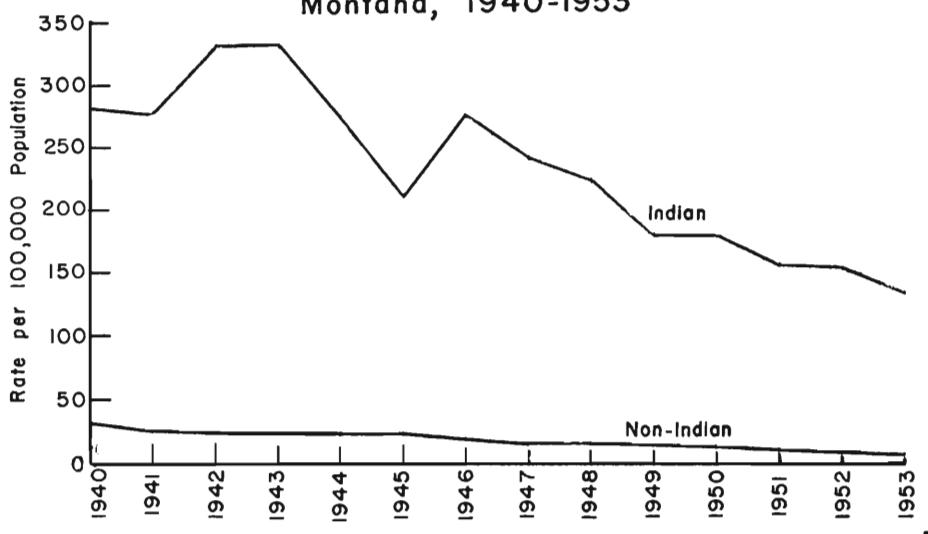
**NEW X-RAY EQUIPMENT**—Dr. Mary E. Soules (left), Missoula, Montana Public Health District No. 3 health officer, and Dr. William F. Morrison, Missoula, examine the new chest X-ray equipment recently installed in the district health department offices in Missoula. The equipment was purchased by the Missoula County chapter of the Montana Tuberculosis Association and placed on permanent loan in the health office. This equipment will bring to the Missoula County area screening chest X-rays on a year-round basis; a real improvement over the visits every two or three years of the state's mobile equipment.

Figure 1  
TUBERCULOSIS DEATH RATES:  
United States and Montana, 1940-1953



(1953 Rate for U.S. - provisional)

Figure 2  
TUBERCULOSIS DEATH RATES BY RACE:  
Montana, 1940-1953



of 77 deaths from this disease was recorded for 1953—a rate of 12.0 per 100,000 persons in this state, compared to a provisional death rate of 12.3 per 100,000 for the United States as a whole. (Figure 1) 23 of these 77 deaths occurred among Indians—accounting for a tuberculosis mortality rate of 135.2 in this segment of our population.

In addition to the Indian problem, the principal non-Indian tuberculosis problem is in Silver Bow County, where 18 deaths from tuberculosis occurred in 1952, and 17 deaths in 1953, with the respective tuberculosis death rates for each year being 37 and 31 per 100,000 population. This Silver Bow County, with about eight per cent of the state's population, accounts for  $\frac{1}{3}$  of the tuberculosis deaths in the state, exclusive of Indians.

Deaths from tuberculosis among Montana Indians and from Silver Bow County amounted to 45 in 1952 and 40 in 1953. Silver Bow County and the Indian population combined providing about ten per cent of the state's population account for more than half the deaths. This clearly demonstrates that better control of tuberculosis among the Indians on the reservations and in Silver Bow County should comprise our main effort in this field.

Conferences held with the superintendent of the State Hospital at Galen have resulted in a more satisfactory procedure for receiving current admission and discharge notifications on the disease status of cases at that institution. Information exchange on tuberculosis patients hospitalized or under the medical supervision of the Veterans Administration has been improved.

Assistance was given in the establishment of a local case register in the Great Falls-Cascade County Health Department. A modified case register containing up-to-date information on all tuberculosis cases in Big Horn County was prepared for use by Montana Public Health District No. 1. A similar register was set up on all Indian cases under the supervision of the medical and nursing staff at the Blackfeet Reservation.

The Attorney General's office was assisted in drafting a statutory amendment which broadened the criteria for admission to the state hospital at Galen to include non-citizens who have been a resident of the state for at least one year. (1)

The complete eradication of this communicable and preventable disease as a serious health problem in Montana is realistically foreseeable if facilities can be provided to apply the already established control methods of early case finding, treatment, and rehabilitation.

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(1) Section 80-120, Chapter 142, Session Laws, 1953.



**ADVISORY GROUP**—The Chest X-ray Survey Advisory Committee (above) of the Montana Health Planning Council is an important element in the planning and organizing of Montana's effective, intensified Chest X-ray Survey program.

**TABLE 10**  
Tuberculosis Cases Reported in 1952 and 1953—By Source of Report

Source of Report—	1952	1953
Physician	116	145
Sanatoria and Hospitals	67	47
Chest Clinics	30	36
Mental Institutions	10	4
Death Certificates	25	22
Transfer from Other States	28	32
Veterans Administration and Other	48	53
TOTAL	324	339

**TABLE 11**  
Comparison of Reported Cases to Deaths in Montana  
Tuberculosis: 1925-1953

Year	New Cases Reported	Deaths	Ratio of Cases Reported to Deaths
1925	620	396	1.56
1930	534	337	1.59
1935	432	257	1.69
1940	451	231	1.95
1945	399	166	2.40
1950	425	114	3.73
1951	334	85	3.93
1952	324	79	4.10
1953	339	77	4.40

### **Heart Disease Control**

The principal heart program, too, has been through the chest X-ray survey through its case finding and educational program. The annual postgraduate heart lectures for physicians were discontinued in 1953 because of lack of funds. The Heart Bulletin for physicians was maintained on a month-to-month basis. While this could not be budgeted for, it was possible to maintain it from small budget lapses.

### **Industrial Hygiene**

Because of a lack of staff, this program has been at a low ebb since 1951. Since July 1, 1952, the program had the services of one chemist and such time as the Executive Officer could give. Since July 1, 1953, the chemist's time was further reduced to half time. Some help has been secured from the U. S. Public Health Service Industrial Hygiene field station. However, the public health service staff is not available to do work in Montana that should be done by the state health department.

In an attempt to solve the Industrial Hygiene engineering staff vacancy, one of the sanitary engineers on the Environmental Sanitation staff is on education leave to attend the School of Public Health in Pittsburgh for appropriate industrial hygiene engineering training. Upon his return to Montana, industrial hygiene activities will be increased. The program will continue to be without proper physician participation until more medical staff is secured.

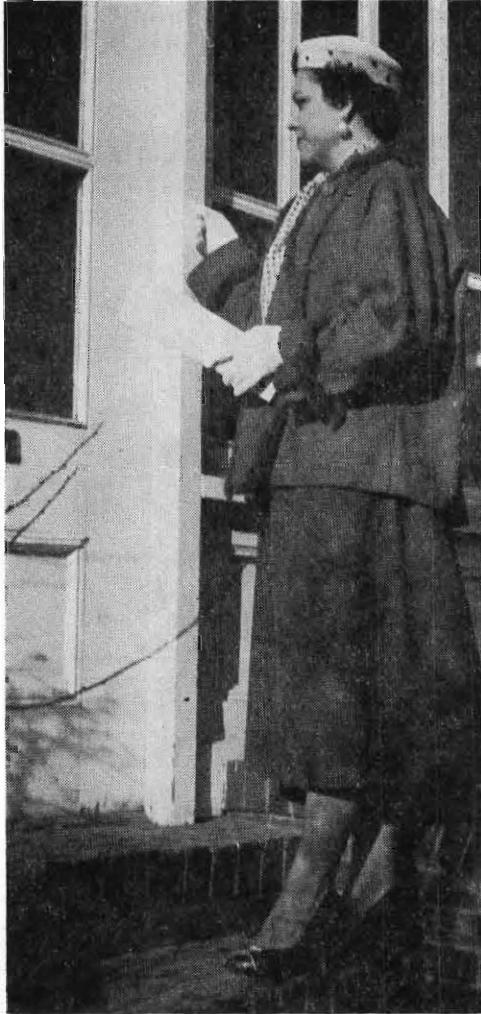
With increasing attention towards safe driving, an increase occurred in blood specimens for alcohol determination. This was substantial. In 1953 this division began to cooperate with the State Highway Patrol in performing blood-alcohol tests. This resulted in an agreement whereby the chemical laboratory examined all blood and urine specimens submitted by the Highway Patrol. All containers are prepared in the laboratory and specimen containers are sealed so as to protect all parties concerned. The Highway Patrol is wholly responsible for all phases of the program except for the actual laboratory testing.

The number of cases of silicosis, third stage, as reported by the Montana State Welfare Board is 626 cases for August, 1953; 612 cases for July, 1954; and 613 cases for August, 1954. The statistical study completion is still pending.

Monthly reports are still being sent to this office by the Anaconda Copper Mining Company, the Great Falls Smelter, and the American Smelting and Refining Company, East Helena. A statistical study on this was done by the U. S. Public Health Service in the past but due to lack of funds, this service has been discontinued.

Laboratory and field analyses: 36 samples were analyzed for chemical contaminants in the laboratory on air, urine, blood and dust; 76 determinations were made on atmospheric contaminants in the field, with direct reading instruments.

Summary of laboratory and field analyses: Arsenic, 2; Carbon Monoxide, 19; Carboxy Haemoglobin, 7; Hydrogen Cyanide, 14; Hydrogen Sulfide, 10; Lead, 5; Nitrogen Oxide, 2; Mercury, 1; Oxygen, 2; X-Ray, 50. Total determinations, 112.



## CHEST X-RAY SURVEY

L. S. McLean,  
director

**ADVANCE REGISTRATION**—A housewife is shown knocking at a door in her neighborhood in the pre-registration of people for chest X-rays in connection with the intensified survey in Silver Bow County.

This Chest X-ray Survey is a screening program for the detection of suspicious conditions of the chest, to permit early diagnosis and treatment of tuberculosis, cancer, heart conditions and other chest diseases. In no sense is it claimed to be a diagnostic procedure, but rather a rapid screening process. All persons found to have suspicious changes from the normal are directed to their self-designated family physician for the establishment of diagnosis and the institution of indicated treatment.

Any well-planned and effectively-operated chest X-ray program is a valuable tool in the control, and thus the prevention, of significant chest illness.



**PHYSICIANS PARTICIPATE**—Dr. James M. Flinn, Helena, speaking before a union meeting in East Helena in support of the chest X-ray survey then being conducted in Lewis and Clark County. As president of the Montana Medical Association, Dr. Flinn encouraged the union members to take advantage of the opportunity to have an X-ray taken.

Provisional analysis (Table 1, page 80) of the results of this concentrated project, begun in November, 1952, and covering twenty months of operation within this biennium reveals that:

- 1) 175,992 individuals received miniature X-rays out of a possible 238,422 X-rayables (12 and older); this represents 73.8% of the total X-rayable population in these counties.
- 2) Out of a total of 5,127 persons having suspect tuberculosis, cancer, heart disease and other chest abnormalities, 3,770 were considered sufficiently significant as to require referral to their private physicians.
- 3) To date,\* the Montana Chest X-ray Survey office in Helena had received final medical confirmation on 2,200 (60%) of these initial suspect conditions, verifying their importance as to need for specific treatment or supervision.
- 4) While many reports remain to be completed, data now available indicate that 497 of the original group of 3,770, have been declared—by private medical judgment, augmented by epidemiological investigation—to have been previously unknown to the patient, their family physicians or other medical agencies in this State. These discoveries must be attributed to the Montana Chest X-ray Survey program.

\* June 30, 1954

TABLE NO. 1  
MONTANA CHEST X-RAY SUMMARY DATA  
Counties X-Rayed November, 1952 Through June, 1953  
(Data Tabulated as of Sept. 17, 1954)

COUNTY	%	REFERRALS TO PRIVATE M.D. FINAL M.D. PATHOLOGY REPORTS										IN-COMPLETE REPORTS		COMPLETE REPORTS REPORTED BY M.D. AS DISCOVERED BY SURVEY								
		Number Persons X-rayed	70-mm Suspect Abnormalities	After 4x5	After 4x5 Appointment Failure	No 4x5 Appointment (Direct)	Total Referrals	TB	Other	Neo	Heart	Neg.	Total	Number Reported by M.D.'s as Patient Failures	Number Pending (Report Inc.)	No Information Received	TB	Other	Neo	Heart	Total	
1. Liberty	64.0	1,017	34	9	4	12	25	7	1	1	8	3	20	0	0	5	2	1	0	1	4	
2. Toole	81.8	4,091	146	48	43	20	111	11	16	5	40	13	85	6	1	15	4	5	1	18	28	
3. Pondera	71.9	3,356	97	49	13	4	66	6	8	3	31	10	58	1	5	2	3	2	5	15	12	
4. Teton	76.6	4,048	108	78	11	2	91	4	11	1	58	7	81	4	2	4	2	5	0	15	22	
5. Lewis and Clark	78.6	14,082	410	232	25	94	351	26	42	3	94	23	188	11	1	151	10	7	0	7	24	
6. Cascade	72.9	28,210	890	243	23	480	746	78	107	26	168	57	436	10	6	294	28	17	12	29	87	
7. Glacier	80.6	6,120	234	101	82	24	207	73	43	3	31	9	159	11	5	32	34	12	2	8	56	
8. Chouteau	69.4	3,536	100	31	10	49	90	9	6	2	21	10	48	0	0	42	4	0	1	2	7	
9. Lincoln	90.3	5,728	200	32	15	116	163	12	11	2	46	14	85	3	0	75	3	1	2	12	18	
10. Lake	73.9	7,467	219	51	22	133	206	21	29	3	59	4	116	4	1	85	15	8	0	11	34	
11. Flathead	81.0	18,654	604	201	92	37	330	47	49	5	87	11	199	18	2	111	22	12	4	8	46	
12. Mineral	98.5	1,496	54	9	9	23	41	5	6	1	14	1	27	1	0	13	1	2	0	2	5	
13. Missoula	76.7	19,878	364	63	27	136	226	24	38	6	55	16	139	6	5	76	8	11	3	9	31	
14. Sanders	90.8	4,631	93	19	18	38	75	21	10	1	23	3	58	1	1	15	6	7	1	5	19	
15. Ravalli	81.0	7,122	151	26	11	102	139	8	34	3	76	1	122	2	0	15	5	7	1	26	39	
16. Powell	82.8	4,458	103	41	17	16	74	9	7	2	5	3	26	1	2	45	0	1	0	1	2	
17. Deer Lodge	76.0	10,369	275	93	14	140	247	18	26	1	44	7	96	1	0	150	9	8	1	2	20	
18. Granite	79.0	1,718	49	17	7	16	40	2	2	0	10	2	16	1	0	23	1	0	0	0	1	
19. Silver Bow	60.3	23,325	862	175	36	233	444	23	77	3	87	9	199	5	1	239	10	11	3	9	33	
20. Beaverhead	67.9	3,435	53	6	2	23	31	1	2	1	7	2	13	0	0	18	0	1	0	1	2	
21. Madison	71.8	3,251	81	18	12	37	67	2	10	0	17	0	29	0	2	36	1	2	0	4	7	
TOTALS		73.8	175,992	5,127	1,542	493	1,735	3,770	407	535	72	981	205	2,200	86	35	1,449	168	120	33	175	497

For comparative purposes only: Average results obtained in previous chest surveys in these same 21 counties (between 1947 and 1952) revealed a 35% response (80,771), yielding a total of 2,329 initial miniature film chest abnormalities. (See Table 2.)

Funds for this program are provided by the Montana Tuberculosis Association, through its annual Christmas Seal Sale, the Montana Division of the American Cancer Society, from its annual Cancer Crusade, and tax funds administered through the Montana State Board of Health's tuberculosis, cancer and heart disease control programs. (See Table 3.)

The Chest X-ray Survey program has continued to receive the full endorsement of the Montana Medical Association and the Montana Health Planning Council, as well as many other business, professional and labor organizations.

On the basis of an analysis of the results of chest surveys conducted in Montana over the previous 5 years, a new approach was made to the entire survey operation, in the summer of 1952, with special emphasis given the pre-planning phases. This planning has materially contributed to the success of the present fast-tempo X-ray program.

Procedural details on community organization, as well as the operating aspects of the project, based on similar experiences in other states, were discussed by staff members of both the State Board of Health and the Montana Tuberculosis Association in meetings augmented by technical assistance from representatives of the United States Public Health Service.

Dr. W. F. Kimmell, medical officer in charge of the State Board of Health's Tuberculosis Control program, continued his over-all direction of the survey program with its new emphasis. The new type survey had



**COMMUNITY PLANNING**—Community leaders talk with a group of citizens at a Community Meeting in a Helena grade school at which time the people voted to ask the mobile X-ray units be made available to the area for an intensified chest X-ray survey of Lewis and Clark County.

**TABLE NO. 3**  
**MONTANA CHEST X-RAY SURVEY FINANCING**

<b>AGENCY PARTICIPATION</b>	<b>FISCAL 1952-53</b>		<b>FISCAL 1953-54</b>	
	Budget	Expenditure	Budget	Expenditure
Montana Tuberculosis Association	\$18,800.00	\$18,032.29	\$38,800	\$34,478.03
Montana Division				
American Cancer Society			12,660	12,258.17
State Board of Health	62,777.93	69,381.32	44,945	48,069.61
<b>TOTAL</b>	<b>\$81,577.93</b>	<b>\$87,413.61</b>	<b>\$96,405</b>	<b>\$94,805.81</b>

an augmented staff consisting of three health educators (community organizers), six mobile X-ray unit operators, and clerical personnel. This staff was assisted by Health Education and Public Health Nursing services financed through other division budgets. Already available for use were 2 mobile and 1 portable X-ray units containing miniature photofluorographic equipment for taking 70-mm pictures, plus a slightly larger 4 x 5 stereo camera to be used for retaking persons having suspected cancer and tuberculosis.

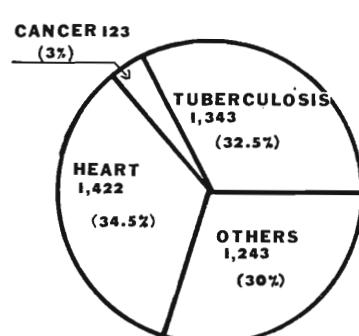
Although community response in the first 8 months of operation was satisfactory, it became apparent in the early Fall of 1953 that the proposed 3-year deadline for covering the entire State could not be met without stepping up the speed of the operation in the remaining counties.

On June 30, 1953, Dr. Kimmell resigned. Dr. L. S. McLean was named

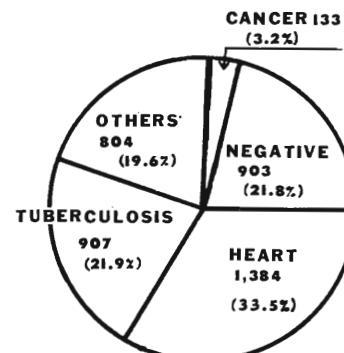


**VOLUNTEER WORKERS** — Volunteer workers are due the major share of the credit for the improved coverage in Montana's intensified chest X-ray survey program. Mrs. R. W. (Agnes) McMahon, Drummond, is pictured on snowshoes registering people on her mail route for Granite County's chest survey. She carries the rural mail route out of Drummond to Garnet.

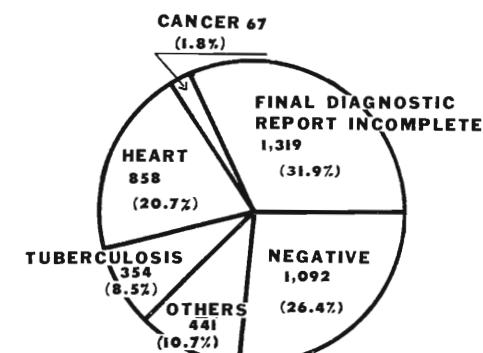
Suspect Chest Abnormalities Found  
in Chest X-Ray Survey in 18 Montana Counties,  
November 1952--March 1954



Suspect Chest Abnormalities Found on Miniature Film Taken at Mobile X-ray Unit.



Suspect Chest Abnormalities After Reading of 4 x 5 Stereo Retake X-ray Film.



Chest Abnormalities Following Attending Physicians Report as of July, 1954.

**SURVEY FINDINGS**—In the first 18 Montana counties covered in the State's intensified chest X-ray survey program, 4,131 suspect chest abnormalities were found in the 145,981 people X-rayed. The three pie-type charts above illustrate the operation of the screening technique in finding chest abnormalities. All suspect abnormalities found in the county-wide surveys are shown on the left. Findings developed after reading a second X-ray of these "suspect" con-

ditions resulted in the classifications shown in the center. Of these, 3,228 were of sufficient significance to warrant further study, and were referred to their private physicians for final diagnosis. Final diagnosis of these 3,228 cases by private physicians are shown in the chart on the right. Definite abnormalities were found in 1,720 (1.2%) of the people X-rayed in the 18 counties. Final diagnoses have not been reported on another 1,319 (0.8%).

as his successor. The assignment was, and is, in addition to the latter's responsibilities as Director of the State Board of Health's Division of Local Health Services. At the same time, provision was made for the appointment of a part-time radiologist to read the X-ray films. This had been done by Dr. Kimmel, before his resignation. (See Organization Chart, Fig. 1, page 87.)

To improve field-operating efficiency, one of the X-ray technicians was assigned to supervisory responsibility and proposals were made to obtain the loan of an additional mobile X-ray unit from the U. S. Public Health Service. This unit was secured in February of 1954 and was first used in the Silver Bow county-wide survey to implement the three original pieces of miniature X-ray equipment.

Cooperation in planning for more effective local preparation has been received from the Montana Health Planning Council and its Chest X-ray Advisory Committee. In Montana, this type of survey is conducted on the basis that it is a locally-sponsored and locally-responsible program. Only necessary technical assistance is offered by the staff of this office. Thus, before any county is scheduled, provision is made for ensuring observance of the confidential patient-physician relationship by initially obtaining the district medical society's approval. With leadership from a staff community organizer, local committees handle most of the necessary community preparation and a local Professional Services Committee is organized to assist in the actual operating and follow-up phases of the program.

Periodic in-service training and planning meetings are conducted, between the director, his office and field staff and with related consultants, to improve the internal and technical aspects of the program's operation.

Major responsibility for most of the field retake (4 x 5 stereo film) activities and follow-up supervision has been reassigned to the Division of Public Health Nursing. Despite a vacancy in such a position on the public health nursing staff, sacrifice arrangements were made in the nursing division to accomplish this work within the existing structure of that staff.

The clerical staff in this office has done an exceptional job in adjusting to the increasing volume of work involved in confidential reports, queries and statistical tabulation in connection with this expanded, fast-tempo operation, although their number has not increased from the original four employed in 1947.

Adherence to all projected local X-ray schedules has been maintained despite several instances of unpredictable and costly mechanical breakdowns, compounded by present difficulties in securing repairs and replacement parts for such mobile X-ray units.

TABLE NO. 2  
MONTANA CHEST X-RAY SUMMARY DATA  
70-mm Films Taken

No. COUNTY	Popu- lation	X-Rayable Pop.	Previous Surveys (Average) No.	%	Intensified Survey No.	%	No. Suspected Abnormalities Prior S. Inten. S.	M. D. Referrals Prior S. Inten. S.
1. Liberty -----	2,180	1,591	598	38	1,017	64.0	9 34	9 25
2. Toole -----	6,867	5,012	1,919	38	4,091	81.8	36 146	36 111
3. Pondera -----	6,392	4,666	1,682	36	3,356	71.9	22 97	22 66
4. Teton -----	7,232	5,279	2,511	47	4,048	76.6	57 108	57 91
5. Lewis and Clark -----	24,540	17,914	6,043	34	14,082	78.6	215 410	215 351
6. Cascade -----	53,027	38,710	20,351	52	28,210	72.9	846 890	846 746
7. Glacier -----	9,645	7,595	2,094	28	6,120	80.6	49 234	49 207
8. Chouteau -----	6,974	5,091	2,167	42	3,536	69.4	50 100	50 90
9. Lincoln -----	8,693	6,346	2,169	34	5,728	90.3	54 200	54 163
10. Lake -----	13,835	10,100	3,497	35	7,467	73.9	66 219	66 206
11. Flathead -----	31,495	22,991	4,838	21	18,654	81.0	104 604	81 330
12. Mineral -----	2,081	1,519	637	42	1,496	98.5	16 54	16 41
13. Missoula -----	35,493	25,910	10,269	39	19,878	76.7	232 364	232 226
14. Sanders -----	6,983	5,098	1,603	31	4,631	90.8	40 93	40 75
15. Ravalli -----	12,037	8,787	3,528	37	7,122	77.5	91 151	91 139
16. Powell -----	7,371	5,381	1,151	25	4,458	82.8	47 103	47 74
17. Deer Lodge -----	19,154	13,982	3,869	32	10,369	76.0	116 275	116 247
18. Granite -----	2,978	2,174	819	40	1,718	79.0	27 49	27 40
19. Silver Bow -----	55,737	40,688	7,372	21	23,325	60.3	216 862	216 444
20. Beaverhead -----	6,931	5,060	2,074	46	3,435	67.9	41 53	41 31
21. Madison -----	6,203	4,528	1,580	36	3,251	71.8	45 81	45 67
TOTALS -----	325,848	238,422	80,771	35	175,992	73.8	2,329 5,127	2,356 3,770

Note: The average percentages of previous surveys are based on 1950 population.



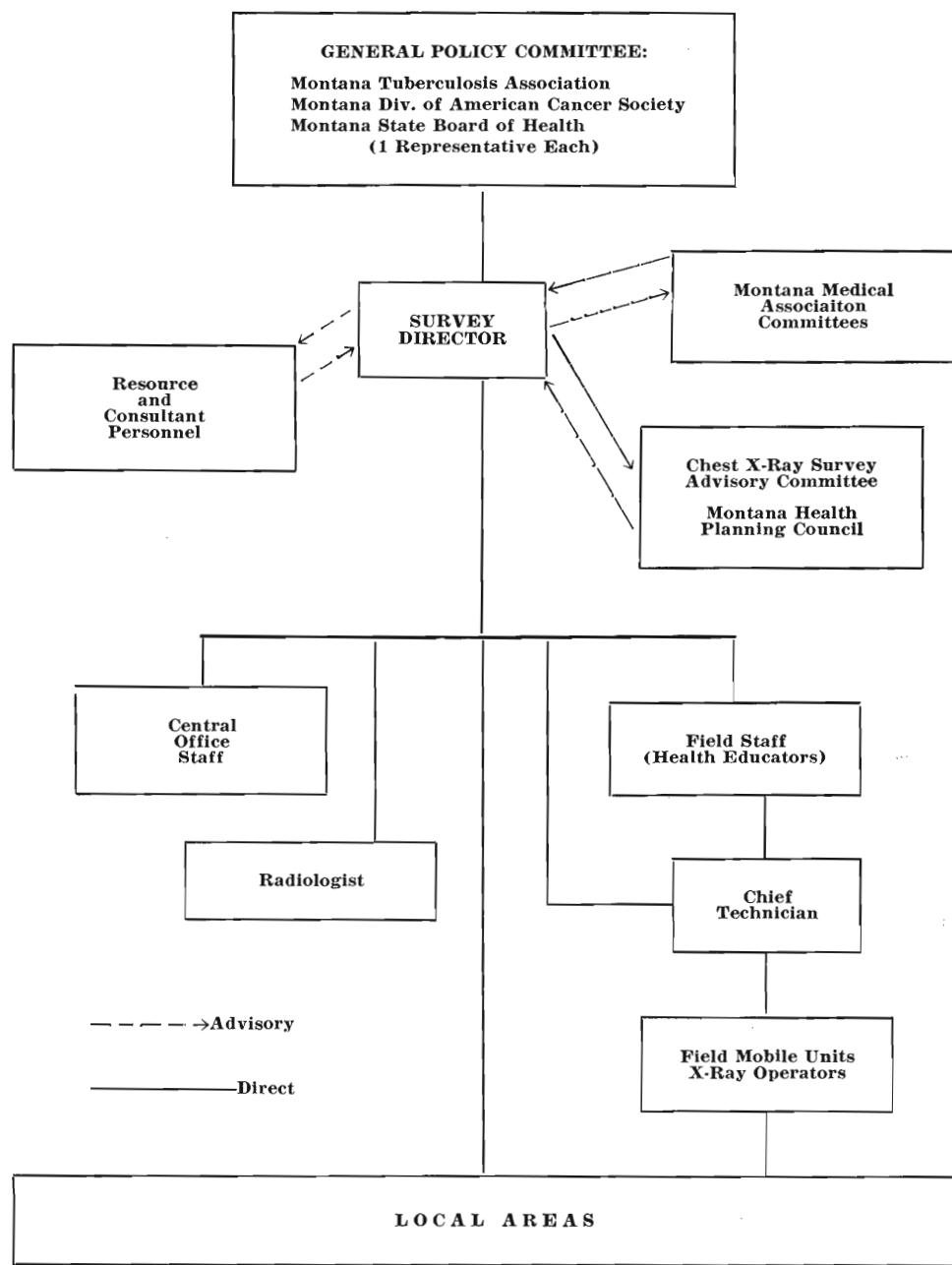
**BUTTE**—Volunteer civic leaders (above) meet at the Silver Bow County chest X-ray survey headquarters in the Chamber of Commerce office in Butte, to plan the advance registration program for the county-wide survey.

In this report period the Division of Health Education has assumed major responsibility for the review, preparation, inventory and supervised distribution of educational materials and media essential to the successful promotion and interpretation of the survey program.

Recognizing the growing significance of lung cancer, the Montana Division of the American Cancer Society, in the summer of 1953, became a partner in the sponsoring and financing of the program. Shortly after this, an executive group was created to oversee and assist the survey director in the over-all administration of the program. This General Policy Committee represents the three sponsoring agencies; its members are Mrs. H. W. Peterson, executive vice president of the Montana Division of the A. C. S., John Casebolt, executive secretary of the Montana Tuberculosis Association, and Dr. G. D. Carlyle Thompson, executive officer, State Board of Health.

Budget and expenditures, staff content, major program needs, capital purchases, discipline and public relations are representative of the range of topics considered by this committee at its frequent meetings. This working committee has permitted timely interpretation of the survey's operations to the respective agencies.

**FIGURE NO. 1**  
**Montana Chest X-Ray Survey**  
**Organization Chart**



On occasion, serious difficulties have been encountered in maintaining a constant technical and professional staff. Recently, improved staff stabilization has been achieved and it is anticipated that future personnel turnover will not significantly retard the scheduled completion of the State by September of 1955. Similarly, more satisfactory equipment conditioning has been arranged and a better system of future periodic inspection, maintenance and repair has been established to diminish the probability of unit breakdown.

The non-availability in this area of a radiologist for qualified interpretation of the developed microfilm used in this program required that arrangements be made for the part-time services of such a medical specialist in a nearby city.

The lack of local public health nurses in some areas of the State has contributed to some of the delay encountered in completing the follow-up of several cases with questionable chest abnormalities. Nevertheless, public health nursing interviews and 4 x 5 stereo-miniature films will be made available to all persons revealing initial film findings of tuberculosis, cancer and other chest pathology. The community organization approach in the present survey, augmented by the community-wide education program begun prior to the arrival of mobile X-ray units, will be continued and improved.

Professional Services Committees working in the follow-up program in each county survey have much to contribute to already existing local Health Councils. In those areas without local Health Councils, members



**PROFESSIONAL SERVICES COMMITTEE** — Missoula County's professional Services Committee, at a meeting in Missoula to plan the effective follow-up program after the county-wide chest X-ray survey. Professional, volunteer and lay people cooperate in this committee work, designed to get people, found to have chest abnormalities, under medical supervision for diagnosis, treatment and care.

of these committees can well serve as a nucleus in the formation of such Councils.

In the next biennium, in-service training and better staff integration will receive attention through (a) planned meetings of the professional and technical staff and (b) regional field conferences for public health nurses. A proposal to restore a State Board of Health public health nursing consultant position, if successful, will permit additional needed nursing service for retake center activities. It will also ensure more complete follow-up attention to those cases revealed by the Survey as needing either individual supervision or qualified assistance in arranging for treatment indicated by their private physicians.

Judged on the basis of recorded results to date, the program's value has not only been well demonstrated but publicly recognized by the Montana Medical Association and other health groups in Montana.

It is now planned that the remaining 35 counties in the Eastern and Central portion of the state can be served by the program within the ensuing 15 months, July, 1954 - September, 1955. The expected response among the X-rayable population in this section of Montana is estimated at about 80%, or approximately 178,000 adults. (See Fig. 2, page 90.)

**MOBILE X-RAY UNIT**—The Chest X-ray Survey Director (left) is pictured with two of the X-ray technicians in front of one of the three mobile X-ray units now being used in Montana's intensified survey program.

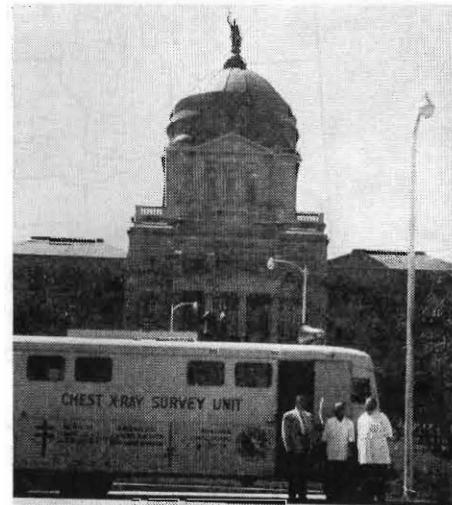
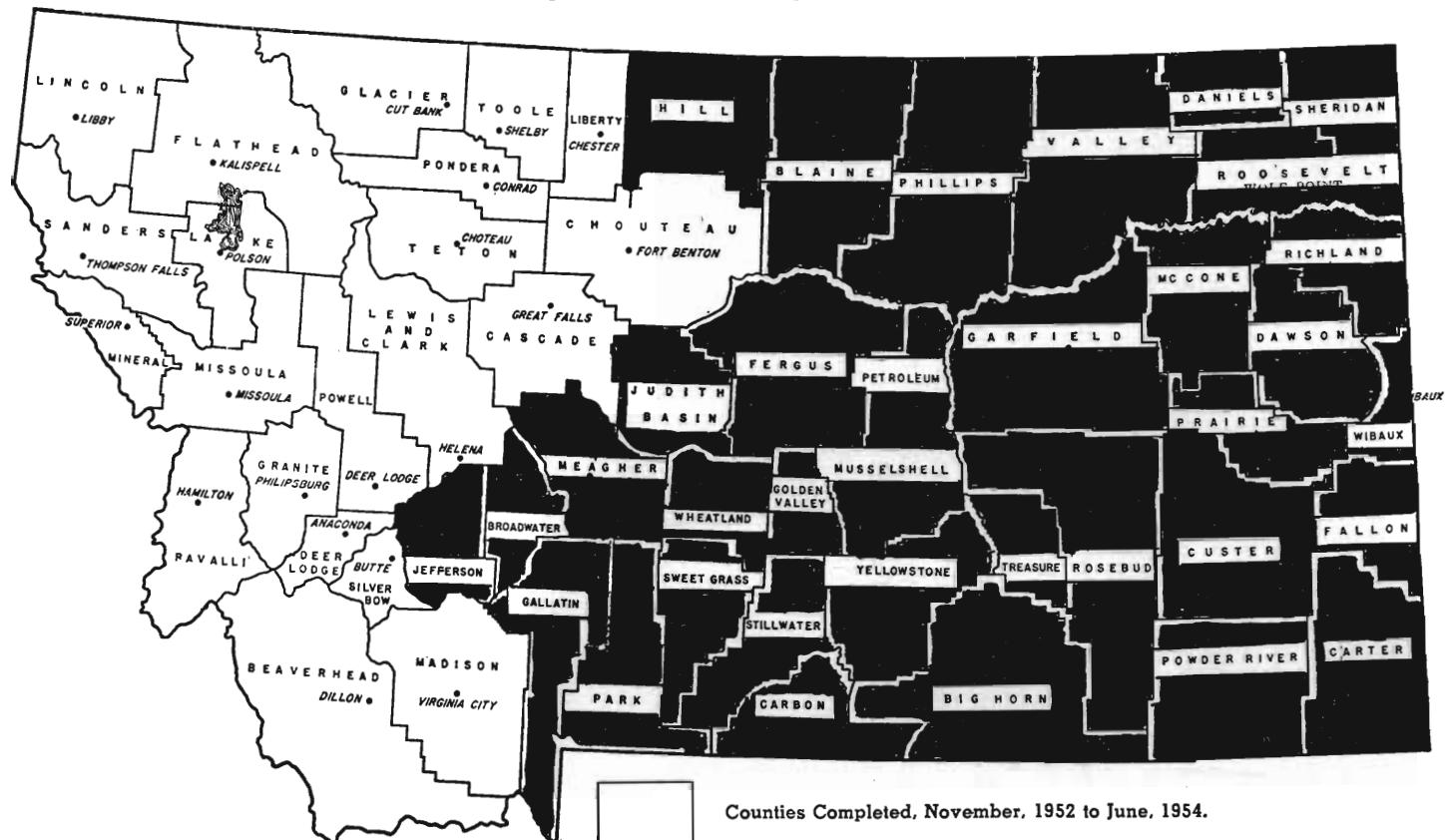


FIGURE NO. 2  
Counties Scheduled for Chest X-Ray Surveys  
July, 1954 Through September, 1955





## ENVIRONMENTAL SANITATION

C. W. Brinck,  
director

**PROTECTING YOU** — A sanitarian taking a sample of ground beef in one of his routine meat market inspections. The sample will be tested for fat content, moisture content, kind of meats used and for indications of adulteration and filler materials.

This Division is charged with the responsibility assigned to the State Board of Health relative to: water supplies, wells, construction plan review, swimming pools, school buildings, public buildings, sewage disposal, stream pollution abatement; cesspool and septic tank cleaning; garbage disposal; licensing of restaurants, meat markets, food manufacturing plants, soft drink and ice cream parlors, tourist courts and locker plants; enforcement of the Mattress and Bedding Law, Economic Poison Law, Hotel Law and the Food and Drug Law.

In addition to these responsibilities, assigned by Montana Law, this Division carries out other responsibilities because of their recognized importance in guarding and improving public health. Personnel and budget limitations have restricted seriously or almost completely curtailed the work in some aspects designated by law: Food and Drug, Hotel, Commercial Insecticide and Mattress and Bedding Legislation. If these aspects of public health are worthy of legislation in Montana, money and personnel should be made available to permit necessary inspection, regulation and education. No public health problem is solved by legislation alone. Laws are but an aid in public health, never an end in themselves.

New and improved legislation is needed in some areas of this Division's work, to permit more effective control of the sanitation of the environment. Housing subdivisions in Montana are not now covered by adequate sanitation legislation. This legal loophole permits serious health problems to develop and threaten neighboring communities. Food and Drug legislation in Montana is based on federal laws enacted in 1906; state legislation should be amended to bring it in line with more recent federal acts and current food and drug information. Montana's stream pollution abatement legislation also needs strengthening.

#### **Future Needs, Plans**

Staff of this Division, in the next biennium, will work with the U. S. Forest Service in Montana to develop a comprehensive sanitation code to cover Forest Service work camps and recreational areas. Work is also planned to improve sanitation at roadside stops and to properly label water at these roadside stops and recreation areas. Seldom is there any indication of the quality of the water supplies at many of these recreation spots. Tourists and Montanans are due that protection.

A new report form for water supply inspections is being prepared in order to speed inspections and reporting. This check-sheet type report form has proved time-saving and effective where used in state health departments.

This Division is working with the Montana Water Well Drillers Association in an effort to develop specifications for water wells. Experience indicates the need for such specifications. Many municipalities have contracted for the drilling of wells and, without recommended specifications, the type well is left to the discretion of the driller. Sometimes this has resulted in an excellent well, but, too often, the community must pay for a well that proves unsatisfactory. In developing recommended specifications for water wells, the municipality, the well drillers and the general public health—as related to public water supplies—should benefit.

Studies indicate that detergents, as discharged through domestic and industrial sewage lines, may be the cause of some of the bad taste and odor some Montana communities are experiencing in their water. Sewage treatment processes do not remove detergents. As a result, those communities taking water supplies downstream from points of sewage discharge are faced with the problem of a frothing water containing detergents that are difficult to remove and produce tasteful water. Detergents in sewage waste are proving a major problem in more populated sections of the United States. Work in this area in Montana is intended to help avoid more serious problems and to alleviate existing difficulties.

Staff engineers in this Division are now revising State Board of Health regulations covering construction and operation of swimming

pools. Regulations now in force do not cover public swimming pools using water from hot springs. It is this type of public swimming pool in Montana that is responsible for the major share of the swimming pool complaints received.

- Working through the State Board of Health—Department of Public Instruction Joint Staff Committee, this Division is assisting in developing a policy on school environment. This policy is to be designed as a guide and aid to school administrators, architects and others to meet the responsibility of developing and maintaining better school environments. After a thorough trial of the recommendations in this new joint policy statement, those found to be effective and workable will be incorporated into a revision of State Board of Health regulations covering the school environment.

#### Water

- **Testing.** Water samples from private water supplies have long been tested by State Board of Health laboratories without charge. Recently, the volume of this work increased until it represented approximately 25% of all bacteriological and more than two-thirds of all chemical water samples submitted for testing. Budget and staff reductions in this biennium required that a charge be made for this service; testing of private water supplies is not required by law and has been done without charge. The fees now charged are: \$1.00 for a bacteriological test of a water sample; chemical water tests vary from \$1.00 to \$10.00, depending upon the type of chemical analysis requested.

Since these minimum fees were established, there has been a sharp reduction in the number of private water supply samples submitted for testing. This would suggest that before the fee schedule was established, many of the samples from private supplies were submitted unnecessarily. Those with reason for chemical and bacteriological tests have found the fees no deterrent.

No charge is made for bacteriological or chemical tests of water samples submitted by local health departments in connection with epidemiological studies.

Montana Law (Title 69, Section 1304, RCM 1947) requires that the State Board of Health fix fees to cover the cost of sampling and testing municipal water supplies and for other water sanitation services required by board regulations. These services include an inspection at least once each year, review of plans and specifications and assistance and advice during emergencies. In the fiscal year 1952-53 these fees amounted to \$12,805.00. Fees for the second fiscal year of this biennium, 1953-54, are still coming to this office. As of October 31, 1954, \$12,532.50 had been collected in municipal water fees.

**Municipal Supplies.** Public health engineers each year inspect all of the municipal public water supplies listed with the State Board of Health. These inspections include the source of the water, the treatment plant, and storage reservoirs. After the inspection, with a representative of the municipality, a written report is submitted to the person in charge of the water system, with copies to city officials and the local health officer.

All water supplies listed with the Montana Public Service Commission are classified as municipal water supply systems. Effort is being made by the staff of this Division to register and regularly inspect the small public water supply systems not listed with the Public Service Commission. Many of these smaller public water supply systems, serving from 10 to



**PROTECTING THE SCHOOL CHILD**—A local sanitarian takes a light meter reading in a classroom to determine if there is enough light for the children. State regulations require that desks and other work areas have a minimum of 25 foot candles of light.



**TO MEET GROWING WATER NEED**—All plans for expansion of public water systems must be submitted to the State Board of Health for review and approval before construction is started. Above, the preliminary clearing work for a new reservoir for Helena's city water supply system.

100 families, are inadequate and take their water from surface streams subject to contamination.

Staff shortages have limited the chemical testing of all public water supplies. An effort is now being made to determine the chemical quality of all public water supplies at least once every five years. Although chemical quality of water varies little from year to year, some public water supplies have not been tested for chemical content in ten to fifteen years. These chemical tests have revealed information not previously known.

Each fall this Division, in cooperation with the Montana State College Engineering Extension Service, conducts a school for Montana water and sewage plant operators and managers. Sponsored by the Montana Section of the American Water Works Association and the Montana Sewage and Industrial Wastes Association, the school is conducted on the State College campus in Bozeman. Communities sending sewage and water plant operators and managers to these schools enjoy improved service as a return on their investment.

**Emergencies.** To assist communities threatened by the June 1953 flood, a sanitarian and a public health engineer were assigned to Great Falls until the dangers were passed. Public water supplies at Neihart and Dutton were put out of operation by the flood; water supplies at Belt, Highwood, Havre, Chinook, Harlem and Shelby were threatened by the flooding streams. Private water supplies at all of these towns were affected as well as those at Wolf Creek, Great Falls, Lewistown and Sun River.

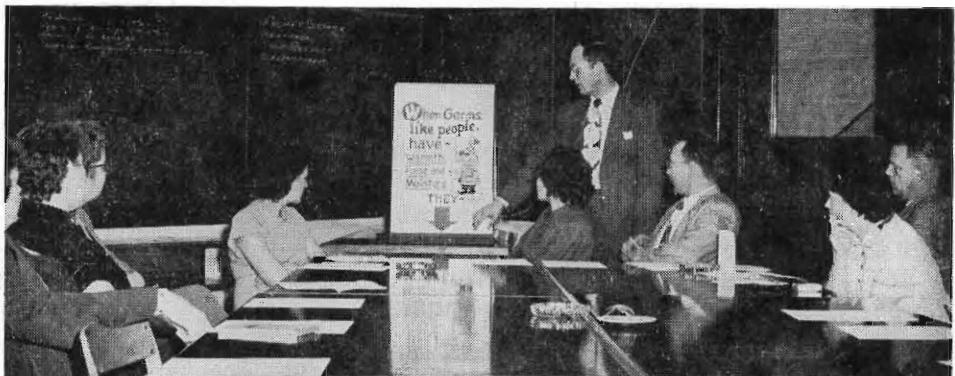
Six pieces of emergency disinfecting equipment are available in this Division for loan to communities throughout the State. Offered without charge, except for cost of chlorine and any repair cost, this chlorinating equipment is available in any emergency affecting the sanitary quality of a public water supply, breakdowns in local community's disinfecting equipment, when temporary disinfection is required, while a community is awaiting delivery of chlorinating equipment. During this report period, emergency chlorinators were placed in use in thirteen different situations. Engineers from this office assist in the installing of the equipment and direct local water plant managers in the proper operating technique. This service makes it possible for every community to supply safe water without interruption, under almost any conditions.

**Plan Review.** In recent years there has been some difficulty in securing the plans for all extensions for review and approval. Work by the staff of this Division has resulted in better compliance with this section of Montana public health law. In this biennium, 40 plans for municipal water supplies were submitted for review and approval. This compares with only 26 plans submitted in 1950-52 and 27 in 1948-50.

It is estimated that public water supply construction in Montana amounted to approximately \$4,600,000 in this report period. The largest additions and extensions were in Great Falls and Billings. In Helena, Ekalaka, Richey, Sidney, Columbia Falls, Hinsdale, Stanford, Kalispell, Broadview and Wolf Point, fifteen new municipal water wells were drilled. New chlorinators were installed and placed in operation at Thompson Falls, Philipsburg, Sheridan, Helena, Hot Springs, Ronan, Belt, Noxon, Richey, Stevensville, Browning and Nashua. Plans for more than twenty miles of water distribution lines were submitted for review in this two-year period.

**Fluoridation.** Some Montana communities have water supplies with adequate fluorine content for the control of dental decay, but most public water supplies are deficient in fluorine.

Engineers in this Division work in close cooperation with the Division of Dental Health in assisting communities with the engineering aspect of adding fluorides to the public water supply. Bozeman, Chinook, Fort Belknap and Roundup are now adding controlled amounts of fluorides to their public water supply as an aid to dental health. Several other towns



**STUDY SANITATION**—A sanitarian from the staff of this division is pictured assisting the county sanitarian in conducting a class on sanitation for food-handlers in Valley County. Such instruction is often the key to the solution of many food-handling and food-manufacturing problems.

in the State have indicated an interest in fluoridation and are expected to start the operation soon.

**Oil Exploration.** Seismograph testing in the search for oil in Montana has permitted the intermingling of waters from various ground strata. Some water strata are heavily mineralized and are not sources of good water for human and animal consumption; other adjacent strata often contain good water.

Seismograph testing for oil involves the drilling of a hole in the ground from 200 to 500 feet. After a charge of explosives is set off in this hole and the seismograph information is recorded, the hole is often not plugged. These unplugged, uncased test holes permit the intermingling of waters of various qualities from the different strata. Often this results in the farmer not having a good source of water. In other cases, artesian wells stop flowing, because of reduced pressure caused by the unplugged test holes. Such test holes may permit cesspools and privies to contaminate waters used for drinking.

Many states have passed legislation to control this situation. At present, Montana law does not require casing or plugging of these test holes.

**Nitrates.** Drinking water with a high nitrate content is dangerous for infants.

After the death of an infant in Froid was attributed to the use of water with excessive nitrates in preparing its formula, public health engineers in this Division conducted an extensive study of the nitrate content of public and private water supplies in the area.

Nitrates may occur in water as a result of natural nitrates in the

soil or as the end product of the digestion of sewage seeping into the water source. Because there was no history of excessive nitrates in the ground water in the Froid area, it is indicated that the nitrate contamination was the result of excessive sewage concentration in that area.

The survey and investigation revealed that the community had constructed a public water system without notifying the State Board of Health, and, because of excessive minerals in the water, it was not generally satisfactory for drinking. Most of the people in the area had continued to use private wells. With the assistance of local citizens, staff members made a study of private wells and found much of the water affected by excessive nitrates. People in the area were notified of the findings. This Division is continuing to work with the community to improve the water supply for the community.

Nitrate determinations are now being made routinely on all water supplies. This testing policy has revealed several water supplies with excessively high nitrate concentrations.

#### Sewage

Mechanical sewage treatment plants in Montana are inspected by this Division once each year to check on all phases of the plant operations.



**PLENTYWOOD SEWAGE LAGOON**—Plentywood is the most recent Montana community to build a safe, inexpensive sewage lagoon to solve its sewage disposal problem. Prior to the construction of this facility, Plentywood's untreated sewage was discharged into a small creek near the community.



**SEWAGE OUTFALL**—Pictured above is the point where the raw sewage from East Helena has been discharged into a small creek. At a recent bond election, the voters of East Helena approved the construction of a modern sewage lagoon to end this unsightly threat to health.

At the time of the inspection, the engineer tries to assist the operator with any problems associated with the operation of the plant. Each plant is requested to submit a monthly report to this Division on the daily operation of the plant and the routine tests made to determine the effectiveness of the plant operation.

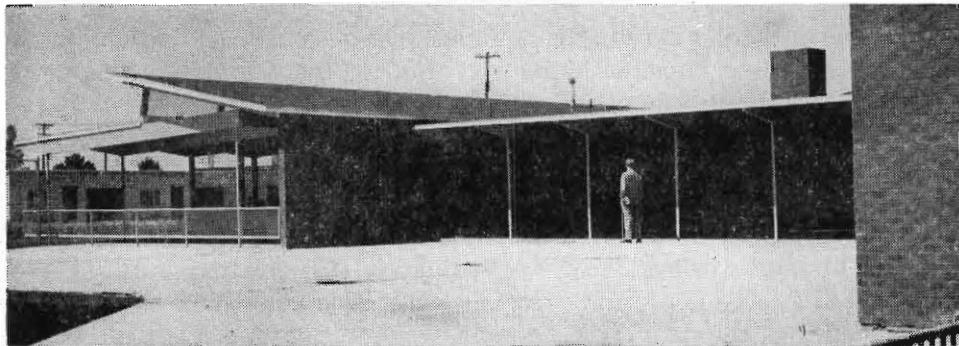
During the past biennium a great deal of interest has been evidenced in the lagoon method of sewage disposal. The lagoon method is based on experiments and work done in North Dakota. It consists of running the sewage into a large pond under certain controlled conditions. In general, these conditions regulate the depth of sewage to a minimum of three feet and a maximum of five feet. The sewage is discharged into the center of the lagoon, having an area of approximately ten acres of lagoon for each thousand people connected to the system. When operating, the lagoon does not produce any odors, gives a better treatment than the most highly

complicated type of sewage treatment plants now in use, is very economical insofar as operation is concerned, and its construction costs, if natural conditions are proper, are economical. However, there are places where it is necessary to modify the natural conditions a great deal, and under such circumstances the lagoon can cost just as much, and even sometimes more than the ordinary mechanical plant. The lagoon has many advantages in that when the sewage is discharged into the lagoon, there is no adverse affect upon any streams, it is not a source of fly or mosquito breeding, nor are any odor problems developed. A set of guides for lagoon construction has been developed for Montana. One lagoon is installed in Plentywood and others are under construction at Dillon, East Helena, Circle and Jordan. Eleven others are in the planning stage. The lagoon is solving the sewage disposal problem for many of our smaller communities, and will make it possible for such communities to have both a sewer system and proper sewage treatment. The cost of the Plentywood sewage lagoon was less than half the cost of a conventional sewage treatment plant.

**Construction.** In this two-year period, 97 sets of plans were submitted for review and approval, as compared with only 34 submitted in the previous biennium and 31 in the 1948-1952 period.

Plans for sewer systems and sewers reviewed in this biennium were for construction valued at an estimated \$1,250,000 and provided for the addition of 77 miles of sewer main connections. By reviewing these plans, before construction is started, engineers in this Division can determine that the design is the best for the community's current requirements and future needs and, also, that the most up-to-date engineering information is incorporated in the planning.

When the citizens of a community understand the need for bonding



**MODERN SCHOOL PLAY AREA**—Modern lighting, ventilation and heating in this new Bozeman grade school are a reflection of the State Board of Health's continuing effort in cooperation with architects and school officials to guard the school-age child's health.

for sewage systems, extensions and modifications, the bond issue is usually approved. In an effort to assist communities in informing the public of local needs, this office, in cooperation with the Health Education Division, makes available information about sewage treatment.

#### **Water Pollution**

There is a great need for more comprehensive stream pollution control legislation in Montana. State Board of Health action in the abatement of stream pollution is restricted to those situations where the pollution can be shown to be a threat to public health. This limited base of operation does not permit effective control, abatement or prevention of water pollution.

Other groups are showing more interest in this conservation problem as it affects their interests: fishermen want better fishing streams, agriculture wants water protected for irrigation, and many industries are dependent on a good supply of satisfactory water.

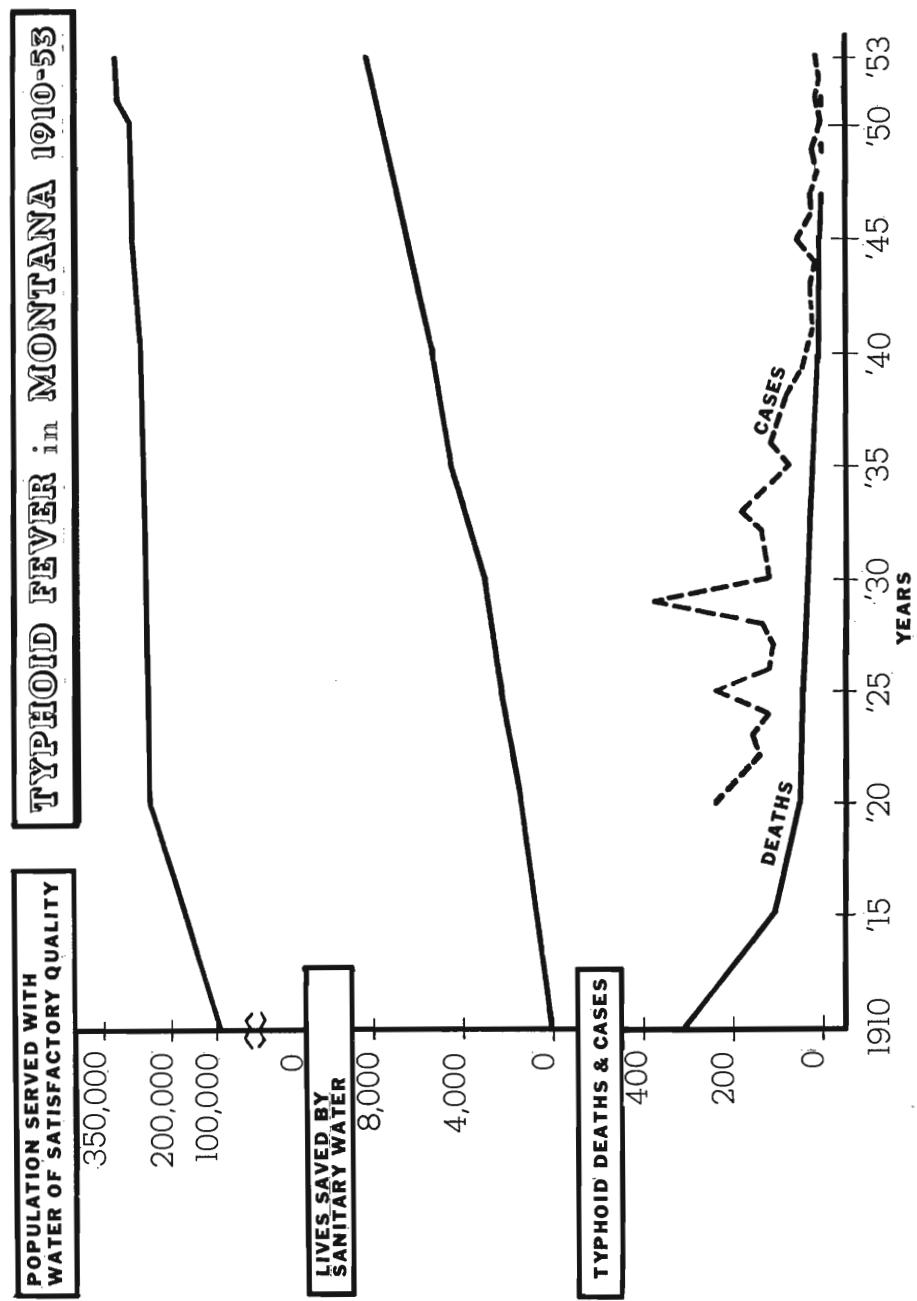
**Kalispell.** Representatives of this Division are assisting city officials in Kalispell with plans to improve community sewage treatment in order to better protect Ashley Creek, which flows into the Flathead River and then into Flathead Lake.

**Mill Site Survey.** Pulp and paper mill operators have indicated an interest in locating mills on Western Montana streams in the vast timber resources available for pulp and paper manufacture. In cooperation with the U. S. Public Health Service, this Division made a survey to determine the most suitable sites for pulp and paper mill operations on Western Montana streams. Some streams were found questionable because they could not accommodate additional wastes, but other locations offer possibilities for new mills, thus increasing the number of wage earners without materially affecting the quality of the streams into which the waste is discharged. These recommended sites have been made known to those groups interested in expanding industrial operations in the State.

**Yellowstone River.** Frequent checks on the Yellowstone River are made since the stream is the source of domestic water for Gardiner, Livingston, Columbus, Laurel, Billings, Forsyth, Miles City and Glendive. Some of the many industrial operations on and near this river have been found to be affecting some of the community water supplies being taken from the stream. Likewise, similar work is being done on the Big Horn River.

**Havre.** Reports were made to this office, in this biennium, that wastes discharged into the Milk River were carrying downstream to Chinook and affecting the quality of the municipal water supply. Public health engineers met with Havre city officials and Great Northern railroad officials and agreed on a plan to correct the contamination of the stream.

**SANITARY WATER ESSENTIAL TO HEALTH**—Montanans supplied with water of satisfactory sanitary quality (in urban areas) has increased from less than 100,000 in 1910 to more than 325,000 in 1953, while the state's typhoid death toll has been cut from more than 150 annually in 1910 to no typhoid deaths in 1953. The number of typhoid cases has been reduced from 251 in 1920 to 5 reported in 1953.

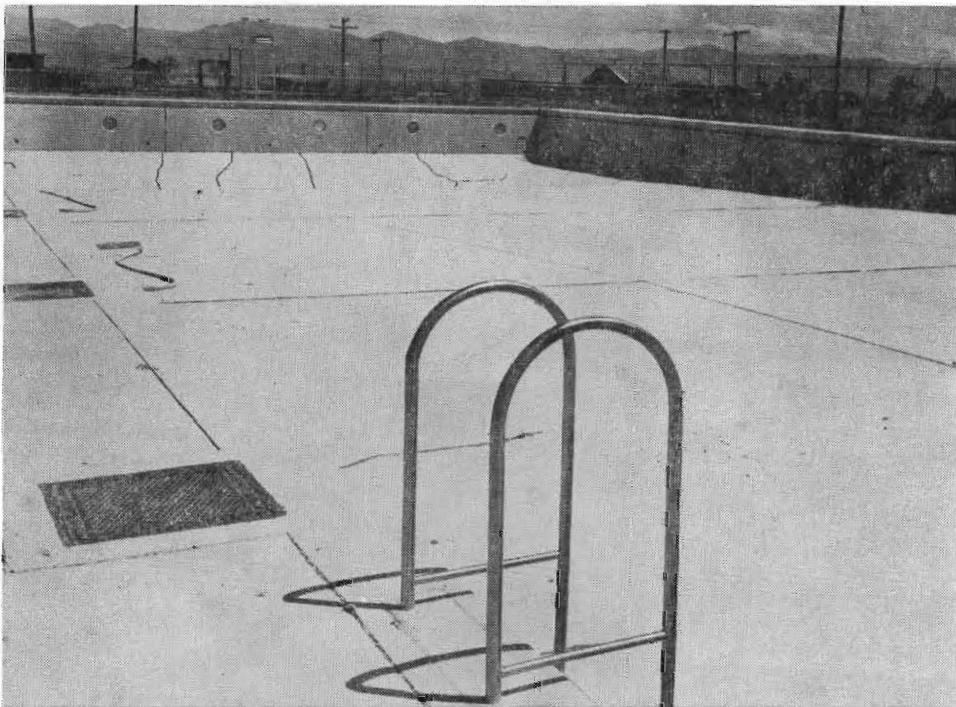


Railroad officials are now taking steps to correct the discharge of industrial wastes into the river. City officials, in the beginning, made efforts to correct the stream pollution, but, in the last five months of this report period, city officials lost interest in effective sewage treatment and changed the personnel at the Havre sewage plant.

**Industrial Waste.** Any industry, involving the discharge of wastes to a watercourse used as a source of municipal water supply, is required by Montana Law to submit to this Division, before the start of construction, plans showing the type of wastes to be produced and the method for their treatment. Officials of industry have been cooperative in meeting this requirement when it is brought to their attention. This requirement has proved very effective in preventing stream pollution problems. Prevention is always easier than correction of pollution.

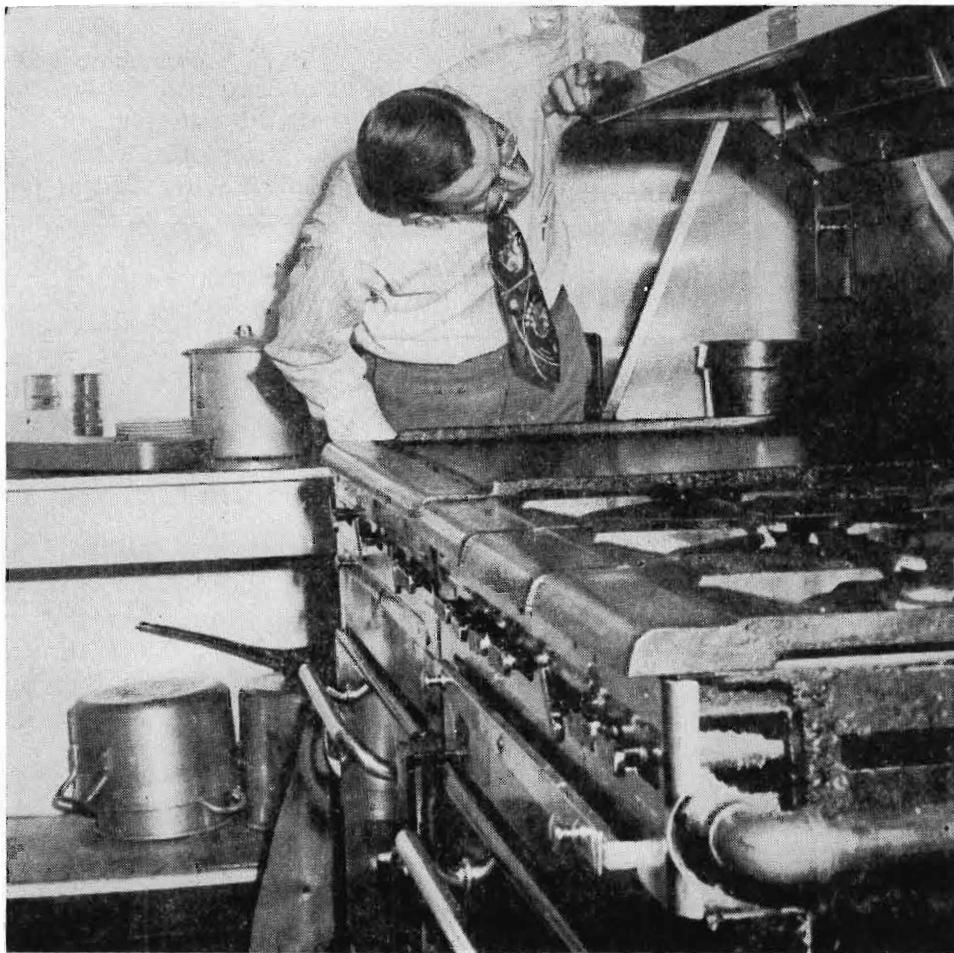
#### **Swimming Pools**

Sanitary facilities for public swimming pools are insured by the requirement that plans for new construction be submitted to this Division for review and approval before construction is started. Unfortunately, this requirement does not cover those pools supplied with natural hot



**MODERN, SANITARY POOL**—Plans for all new public swimming pools are required, by law, to be reviewed and approved by the State Board of Health, before construction starts

water. Because of the high cost of construction and the short season permitting use of the pool, plans submitted to this office reveal that only the minimum sanitary requirements are incorporated in the designs. During the summer months, when pools are in operation, engineers from this Division make inspections whenever their work takes them to a community operating a pool. Monthly reports are required of public swimming pools to show the attendance and the quality of the water each day. New pools were constructed during this report period in Sidney, Wolf Point and Big Sandy. Several other communities are now planning new pools.

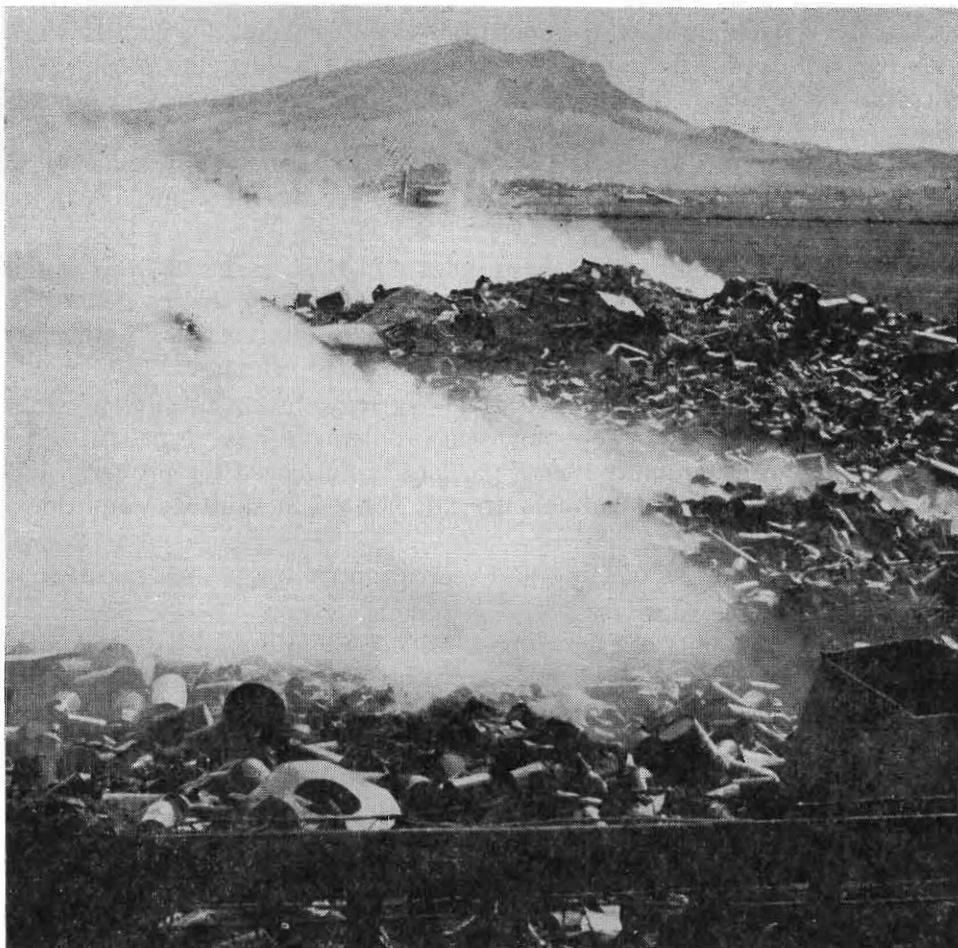


**SANITATION STARTS IN THE KITCHEN**—A local sanitarian checks the kitchen ventilation on a routine restaurant inspection.

### **Garbage Disposal**

Garbage disposal is fast becoming a serious public health problem in many Montana communities.

A few towns are doing excellent work in garbage disposal by using landfill operations. This economical and effective method permits the use of garbage to reclaim land for recreational areas, airports and light structures. In this type of operation, the refuse is dumped into a fill or trench and promptly covered with earth to prevent health hazards. Missoula and Great Falls are employing landfill operations providing convenience, low



**OPEN GARBAGE DUMP**—This unsightly garbage dump serves a Montana community of 18,000. In addition to being an ideal breeding area for insects and rats, it is a continual invitation to scavenging.

operating cost and maximum protection to the community against rats, flies and smoke.

#### **Insect Control**

A study of mosquitoes and mosquito control in the Milk River Valley, in the vicinity of Chinook, has been conducted for the past two years by this Division in cooperation with the Entomological Department of Montana State College and the U. S. Public Health Service. Information developed in this study indicates that the mosquito problem in the area is due to poor irrigation practices. In addition to providing a ready breeding ground for mosquitoes, these poor irrigation practices are reducing the crop yield.

A large population of the mosquitoes that carry encephalitis were found in this area. Studies of these mosquitoes revealed the presence of encephalitis infection in this type mosquito. Under certain conditions it would be possible for Montana to experience a severe epidemic of mosquito-spread encephalitis. There appears to be no ready solution to the problem, but further study of the problem by the State Board of Entomology is important.

Chemicals for controlling mosquitoes and flies have not been found as effective as originally expected. Insects apparently develop a resistance to a given insecticide within two years. Efforts to mix various insecticides in an effort to control insects has not proved too effective.

Good sanitation remains the most effective solution to any fly problem. In Montana, flies are not now the problem they were at one time, but there are still too many flies if garbage is not cared for properly and if cows, horses and other animals are not housed in sanitary conditions.

#### **Camps**

Sanitation features of labor and recreation camps are of special concern to this Division.

New regulations were developed, in this biennium to cover logging and labor camps. These regulations are designed to cover the large labor camp where the men are quartered in bunk houses and eat in a central mess hall, as well as the smaller labor camps where the men are quartered in cabins and do their own cooking. Often, in the smaller camps, the workmen have their families with them. Some very serious public health problems have been found in this type of labor camp. Most of the problems involve imported labor.

Recreational camps, scattered throughout the State, should have safe water supplies and provision for waste and garbage disposal. Limited staff in this Division has permitted only the most cursory inspection of these camps. Better supervision of this type camp is essential to the continued growth of Montana's large tourist business. This staff has done some work,



**SANITARY LANDFILL DISPOSAL**—Authorities recognize the sanitary landfill garbage disposal operation as the best means of complete sanitary disposal at the least cost to the small community. Missoula health officials are pictured (above) inspecting the preliminary work at Missoula's new landfill operation.

in cooperation with the State Highway Department's Office of the State Director of Parks, in an effort to improve the sanitary features of Montana's many roadside stops.

Staff from this Division assisted the U. S. Forest Service at Region I Headquarters, Missoula, in conducting a two-day meeting to deal with sanitation problems at camps maintained by the Forest Service for rangers and fire fighters. Sanitation is essential at these camps if the men are to remain healthy and able to render effective service. This Division also assisted the Forest Service to conduct a course for Safety Officers. Results of this assistance and instruction are becoming evident in improved campgrounds maintained by the Forest Service for the public, better water supplies, sewage disposal and garbage facilities.

In cooperation with the U. S. Public Health Service and State Health Department officials from Idaho, Washington and Wyoming, this Division is working with the Forest Service's Region I Headquarters in Missoula in an effort to develop a pattern of uniform rules and regulations for the Forest Service to follow in Region I. This region includes parts of Idaho, Wyoming and Washington, as well as all of Montana. Without uniform regulations for the entire region, it is difficult for the Forest Service to establish a pattern of sanitary requirements for Forest Service installations throughout the district.

#### **Food Processing and Handling**

Licenses for food processors, restaurants and soft drink establish-

ments have, for many years, been issued under existing Food and Drug Law by the State Board of Health. In theory, these licenses have indicated the establishments are operating with acceptable consideration for the health of the consumer. This has been misleading to patrons. Staff available in this Division cannot possibly inspect the approximately 6,000 food processing and handling establishments each January when licenses are issued. Any establishment not issued a license at that time is, by law, considered to be operating illegally. During fiscal 1953, there were three sanitarians in this Division to inspect the ice cream and soft drink parlors, bars, meat markets, hotels, food lockers and other food-handling and processing businesses. Because of lack of funds, this was reduced to one sanitarian after July, 1953.

Annual inspections of licensed establishments are not effective. Inspections should be made every thirty to ninety days for a reliable degree of protection. While this work was attempted for years by State sanitarians, it was returned to the local health officer who is charged by State Law with the responsibility of the inspections. The distribution of the licenses was tied into this local inspection service. Licenses are prepared in the State office and mailed to the local health officer for issue to establishments in his area. Should he believe a food-handling or food-processing establishment not worthy of a license, he may withhold the license until the sanitary conditions are brought up to the required standard. Provision has been made on the new revised license for an endorsement by the local health officer when he distributes the licenses.

Interest and participation of the local health departments is essential to the development of adequate, sanitary food and transient housing for Montana's growing tourist business. In 1953, the State Highway Department estimated 2,867,194 tourists spent \$81,183,324.00 in Montana.

To protect this important, growing business, every effort should be made to eliminate the annual complaints from several tourists about poor tourist courts, motels and restaurants.

This Division's staff sanitarian devotes his attention to working with local sanitarians to develop uniform codes and standards, offer consultation on local problems, assist with planning for food-handlers schools, and other sanitation health education programs.

With the cooperation of Montana State College, and other groups, this Division, each year, conducts a two and a half day conference for sanitarians at Montana State College.

New meat market regulations were developed and published by this Division in this report period. The new booklet replaces a set of regulations long outdated. Approximately 1,000 meat markets are licensed each year by this Division. The procedure is the same as for any other food-handling establishment, outlined above.

#### **Food and Drugs**

Activities in this area have, of necessity, been restricted to a minimum because: (1) insufficient staff, (2) Montana's Food and Drug Legislation, based on the 1906 Federal Act, is outmoded.

Montana's Food and Drug Legislation hampers work in this field. It permits unsatisfactory conditions to continue and makes enforcement difficult, often impossible. The present law, based on the 1906 Food and Drug Law, is ineffective, and State Legislation should be brought into line with the more recent Federal Food and Drug Act of 1938.

There is a growing interest among food and drug manufacturers in the use of artificial sweeteners. Under Montana Law, the use of saccharine is prohibited except for medical purposes. As a result of new artificial sweeteners and the interest in reducing caloric intake to lose weight, Montana regulations, and their interpretation, have been broadened to permit the sale of foods for dietetic purposes when made with artificial sweeteners, like sucryl. Regulations require that foods using such artificial sweeteners are required to be properly labeled in order to permit their sale without a physician's prescription. Manufacturers would like the State Board of Health to further relax artificial sweetener regulations, but this cannot be done without further modification of the State Law.

Present food and drug work of this Division is limited to checking an occasional poison case for law enforcement officers, a few tests of samples of dairy products and testing of samples of hamburger. If this State is to have an effective food and drug program, constant checking of all products is necessary.

While the majority of the food and drug products shipped into Montana and those produced within the State are satisfactory, there are still some that do not measure up to quality. Federal officials check certain interstate items, but Montana is doing little inspecting and sample testing because of budget and staff limitations in this Division.

The need for budget and staff to permit a close regulation and check on food and drug sales in the State was demonstrated in this biennium when Federal officials found two Montana bakeries shipping bread to out-of-State markets that contained a great deal of filth. This would not have been discovered, except for the Federal action in testing and inspection of materials shipped to other states; otherwise, Montana consumers

of this product would have gone unprotected. Such a situation encourages food and drug manufacturers to "dump" products in Montana when it is difficult to market them in other states because of the poor quality of the product. There is also a need for more extensive testing of hamburger to protect the consumer from adulterants and preservatives. Improved food and drug practice is imperative.

Because Montana's Commercial Insecticide Law is modeled closely after the act recommended by the Council on State Governments and is almost identical to the Federal legislation, Montana accepts Federal labeling and has not taken steps to register tens of thousands of economic poisons on the market. Joint responsibility of the Montana law permits the Director of the State Experiment Station to determine types of plant and animal life to be considered pests and, thus, to be controlled by economic poisons. Without funds, further enforcement of the Montana Commercial Insecticide Law is not possible.

#### **Tourist Courts**

Grading of tourist courts has been discontinued by the State Board of Health because the grade designations with the small State staff would not be meaningful, and because the licenses are now issued through the local health officer, as with restaurants and other food processing plants. In cooperation with the U. S. Public Health Service and the Trailer Coach Association, new tourist court and trailer court regulations were developed by this Division for Montana to supersede outmoded regulations in these two fields.

#### **School Buildings**

Plans and specifications for any construction or repair of a school building is required by law to be reviewed and approved by this Division before construction starts. County treasurers are not authorized to release any funds for such work until they have received a letter of approval by the State Board of Health for the proposed work.

In this report period, the sharp increase in Montana's school-age population is reflected in the number of school building plans reviewed by engineers in this Division. The number is more than double the number reviewed in the previous biennium. In the 1948-50 period, only 77 sets of plans were submitted for approval; in 1950-52, the number increased to 122; in this biennium, 1952-54, 242 sets of school construction plans were submitted for approval.

In an effort to make this work more meaningful, staff members from this Division are working with the Joint Staff Committee (Department of Public Instruction and State Board of Health) on the problems related to school construction and the sanitary environment of the school. Work with this committee is expected to result in improvement of current

regulations covering school construction, lighting, ventilation and general sanitary features.

#### **Septic Tank Cleaning**

The 1951 Legislature passed Title 69, 3101-3107, RCM 1947, requiring licensing of individuals cleaning septic tanks, cesspools and privies. This has been a very difficult law to enforce since it requires someone in the field to watch for these people and see that they obey the law, that they are properly licensed and that they do obtain permits for the disposing of the vault contents, and inspectors are not available in all counties to enforce this legislation. There were 59 licenses issued for the year of 1953, and there were 57 licenses issued during the year of 1954, as of October 31.

#### **"Fringe Areas"**

Areas immediately adjoining Montana's larger, faster-growing communities are presenting a difficult problem of sanitation. Developed just outside city limits, these "fringe" areas develop as any urban area would develop on small lots with the expectation of eventually connecting to city water and sewage lines.

In many of these areas, the home builder must provide for his own water supply and sewage disposal. Often this results in wells being drilled near a neighbor's septic tank. It is not unusual in these situations that an overflowing septic tank affects a neighbor's basement or water supply.

The best solution to this difficulty is to require that land development operations of this nature make provisions for proper sanitary facilities before subdividing an area for home building. Legislation along these lines is necessary to protect home builders, municipalities and people living in the area.

#### **Civil Defense**

If the staff of this Division is to develop an effective and comprehensive program of environmental sanitation for civil defense, either the Division must be relieved of other responsibilities or provision must be made for an expanded budget to permit an enlarged staff.

In this biennium, this Division has been unable to cope with the needs for the development of the environmental sanitation phase of a State civil defense program. Planning for such a program must consider local disasters of natural and of a man-made character, as well as the possibility of a national emergency. Breakdown of sewage disposal and water supply in an emergency can have a serious affect on other phases of a civil defense operation. Without a water supply, the firemen are helpless. Inadequate sewage disposal can lead to epidemics and, in turn, put a greater burden on medical programs. Failure to have developed an effective sanitation program for civil defense can lead to a breakdown of the entire civil defense program.

#### **Mattresses and Bedding**

All second-hand materials used in mattresses or bedding are required, under the Montana Mattress Act, to be sterilized and disinfected. This law also requires labeling and tagging mattresses as to materials used. Enforcement by this Division is carried out by mail because of budget and personnel limitations. This "by mail" program is limited to concern with proper labeling of products shipped into Montana.

#### **Missouri Basin Health Council**

This council is composed of the ten state sanitary engineers representing the ten states of the Basin. Interchange of information through this council has proved very valuable and has permitted joint activities by the states in the field of sanitation. Meetings are conducted once each year at different locations within the Basin. The Director of this Division is now serving as Secretary of the council.

#### **Pollution Control Council**

Twice each year the Pacific Northwest Water Pollution Control Council and the Pollution Subcommittee of the Pacific Northwest Interagency Committee meet for an exchange of ideas and joint planning. The council is composed of the state sanitary engineers of those states having drainage into the Columbia River, and the U. S. Public Health Service's Columbia Basin Engineer. Subcommittee membership is made up of appointments by governors of these states, usually the state's sanitary engineer. The Director of this Division is now serving as Vice Chairman of the council.

#### **Board of Plumbing Examiners**

As now written, the Montana Law licensing plumbers covers only those working in incorporated towns and cities of 1,000 or more inhabitants. This should be amended to cover all plumbers and to authorize the development of a state plumbing code.

**SCHOOL SANITATION**—A local sanitarian makes a routine inspection of a school in his area to help school officials maintain a healthy school environment for the children.



The Director of the State Board of Health's Division of Environmental Sanitation is an ex-officio member and secretary of the State Board of Plumbing Examiners. This Board meets about every two months. In this report period, licenses were issued to 150 journeyman plumbers and 70 master plumbers. A total of 659 journeyman plumbers and 312 master plumbers are now licensed in Montana. This Board is self-sustaining from the fees charged for licensing except for the services of the Secretary.

#### **Dairy Product Testing**

Laboratory analyses are conducted by the State Board of Health on all dairy product samples submitted by the Dairy Division of the State Department of Agriculture. A large number of chemical and bacteriological tests are run on samples of butter, ice cream and cheese for butter fat, yeast and mold, total solids, bacterial count and sediment.

#### **INSPECTIONS**

**July 1, 1952 to June 30, 1954**

	<b>Number</b>	<b>Percent of Total</b>
Inspection of Public Water Supplies.....	316	45.3
Inspection of Private Water Supplies.....	61	8.8
Inspection of Sewage Disposal Systems.....	208	29.8
Inspection of Swimming Pools.....	20	2.9
Miscellaneous Inspections .....	92	13.2
	<hr/> 697	<hr/> 100.0

#### **WATER SAMPLES**

**July 1, 1952 to June 30, 1954**

	<b>Bacteriological</b>	<b>Chemical</b>	<b>Percent of Total</b>
Samples from Public Water Supplies.....	11,361	545	71.4
Samples from Private Water Supplies.....	2,954	467	20.5
Samples from School Water Supplies.....	460	16	2.9
Samples from Tourist Court Water Supplies..	119	12	.7
Samples from U. S. Government.....	473	12	2.9
Samples from Miscellaneous Sources (including stream pollution).....	225	61	1.6
	<hr/> 15,592	<hr/> 1,101	<hr/> 100.0

## **HEALTH EDUCATION**

**K. Elizabeth Anderson,  
director**

Health education is an essential element in all aspects of public health. It is basic to every public health activity; from sewage disposal to parent education.

As with all education, public health education is not just a matter of pouring out facts, warnings, and slogans. Effective health education involves much more. Helping people to help themselves and their communities to better health is the philosophy of health education. It's in sharp contrast to the belief of yester-year that public health could be legislated: a law requiring this and a law prohibiting that. Health education is proving more effective.

In this biennium, emphasis has been on the community organization in the intensified chest x-ray survey to find unsuspected chest abnormalities; narcotic and alcoholism education; school health and local health services; and the purchase, preparation and use of health education materials—books, movies, films, pamphlets, displays, etc.

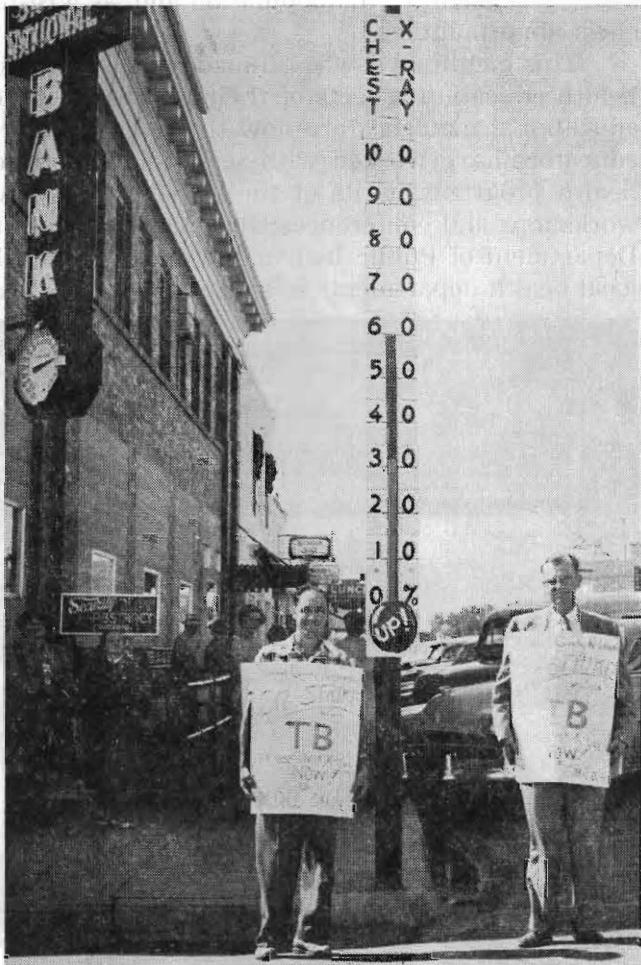
The expected completion of the state's intensified chest x-ray survey in the early part of the next biennium, will permit more emphasis on the other aspects of the disease control program, dental health, sanitation, the development of local health services and some of the many aspects of child health work, including school health.

Future planning calls for stimulation of interest in employing health educators by local health departments.



**COORDINATING EFFORTS**—Close cooperation with volunteer and professional health agencies and organizations is basic to achieving maximum success in any health education program. Pictured above are members of the Montana Health Planning Council's Chest X-Ray Survey Advisory Committee planning with health educators and other members of the Chest X-Ray Survey staff.

Health educators from the Division of Health Education are playing a major role in the improved effectiveness of the Montana Chest X-ray



**IMPROVED CHEST X-RAY SURVEY COVERAGE**—In assisting volunteer workers in organizing their counties for county-wide chest x-ray surveys, the health educator plays a major role in developing improved survey coverage. This work in local communities in educational and organizational work prior to bringing in the mobile x-ray units is resulting in a doubling of the number of Montanans being x-rayed. Pictured above are two Sidney businessmen who worked to improve the coverage of the chest survey in Richland county. Their work—along with that of 1,000 to 3,000 other volunteers—resulted in 99.8% of the county's x-rayable population (12 and older) taking advantage of the x-ray service. Such results, in addition to saving lives, means a better community in which to live.

Survey. In assisting local citizens in organizing their counties for the county-wide surveys, these health educators are insuring the x-rayng of a larger segment of the population and, as a result, the discovery of more chest abnormalities.

This biennium saw continued work in assisting other divisions in the health education aspects of their programs. All of the Board of Health's educational materials are now the responsibility of this division. Health educators have worked with school administrators in developing school health programs; units of the university in developing and conducting workshops and conferences; serving on the Joint Staff Committee (State Department of Public Instruction and the State Board of Health); aiding local health departments in specific programs; assisting in speech clinics;

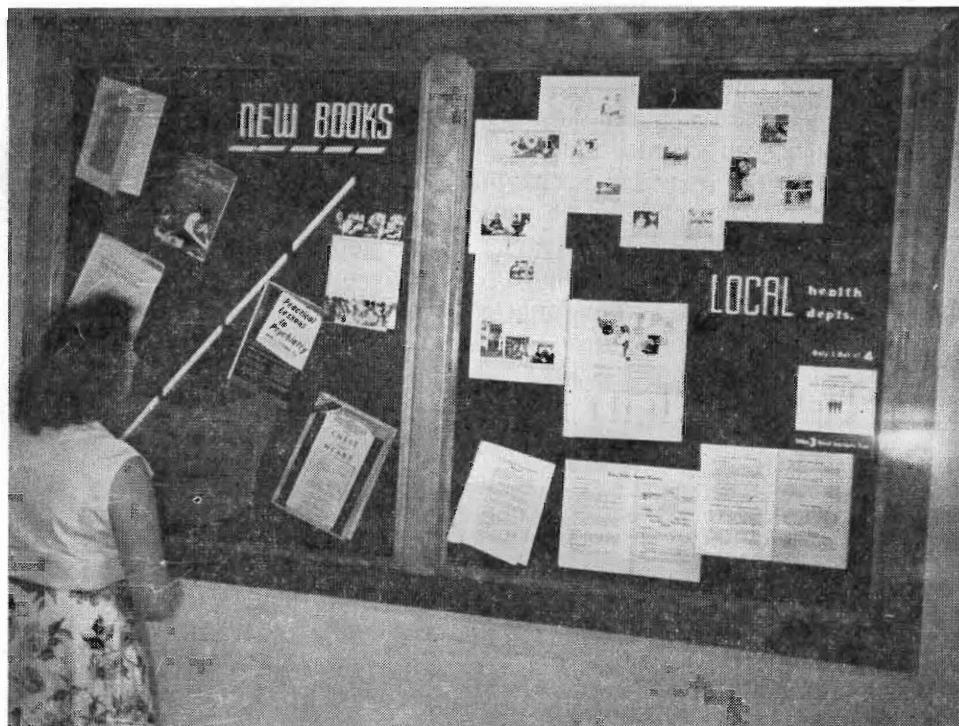


**HEALTH INFORMATION**—Daily requests for health information come to the Board of Health's division of Health Education. Teachers, mothers, school children, nurses and many other interested citizens can direct their requests to this office for booklets, reprints of scientific articles, bulletins and pamphlets on a wide range of health topics. A clerk is pictured wrapping a supply of dental health booklets for mailing. Health information ranging from vision to narcotics is mailed daily from this office.

cerebral palsy and polio institutes for nurses; and extending consultant services to teacher-training institutions in the state and to local health councils and other groups interested in local health services.

Working through and with existing organizations and groups often proves a most effective approach to a health education program. Planning and participating in group meetings is one of the major activities of the division. Following this concept, the health education staff have been participating in some of the educational portions of programs sponsored by the Montana Medical and State Nurses' Associations, voluntary health agencies, the Montana Health Planning Council, service and civic groups, Parent-Teacher Associations and others.

Emphasis in this division's narcotic and alcoholism program in this biennium has been (1) developing with the assistance of the Narcotic and Alcoholism Advisory Council to the State Board of Health, a study of alcoholism, as directed by the 1953 legislature, the basis for recommen-



**KEEPING THE STAFF INFORMED**—Coordinating Board of Health programs requires calling to the attention of the staff members new information in the ever-changing scientific field, the shifting emphasis of programs and new policies. Bulletin boards are but one of the techniques for this continuing staff education. This bulletin board is in the Mitchell Bldg. on the Capitol grounds in Helena.

dations to be presented to the 1955 legislature for a state-wide alcoholism program; (2) assisting in the development of a pilot program study of alcohol. These two programs were in addition to the divisions' routine work with schools, local groups and teacher-training institutions in the field of narcotic and alcohol education. The narcotic and alcohol education consultant in this division took an active part in the Institute on Alcoholism at Montana State University in the summer of 1953 and again in the summer of 1954.

Health education films, available through this division on loan, were reviewed by approximately 23,450 people at 525 showings (exclusive of the films shown on the Chest X-Ray Survey Program) during the biennium. The Board's film library consists of 75 health education films for showing by any interested group. This film library also includes 35 film strips and 13 sound-film strips (with recordings) available for loan.

Work in developing and supplying health education materials to interested individuals and groups continued and included: maintaining a public health library (3,225 books, 90 periodicals, almost 10,000 individual pamphlets) of current information in rapidly-changing scientific areas; distributing booklets, pamphlets and health films on request; supplying pictures, background information and news items to newspapers, radio stations and wire services; preparing exhibits for meetings and conferences; preparing special health education materials for local programs (i.e. polio vaccine field trials; district health department annual report to public); developing and distributing monthly bulletin; special announcements and bulletins to professional groups.

During the biennium, these health education materials were prepared:

NAME OF PAMPHLET	SUBJECT	PREPARED COOPERATIVELY WITH
24 Issues of TREASURE STATE HEALTH	Official Publication of the Board	Executive Officer & Division and Program Directors
Cost of Present and extended Flathead County Health Department	Facts about public health conditions in Flathead County	Flathead County Health Council
Montana Fluoridation Facts	Information on Fluoridation and current status in Montana	Dental Health Division
Message to Parents About Gamma Globulin and Polio	Mass Polio Gamma Globulin immunization progress in Custer and Park Counties	Local committees in Park and Custer Counties and Disease Control Division
Heart Disease State's Big Killer	Heart Disease problem in Montana	Disease Control Division
Cancer Deaths Increasing in Montana	Cancer Problem in Montana	Disease Control Division
Tuberculosis is Still a Public Health Problem in Montana	Tuberculosis Problem in Montana	Disease Control Division

NAME OF PAMPHLET	SUBJECT	PREPARED COOPERATIVELY WITH
County Facts relative to the Chest X-Ray Survey and the Problems of Heart Disease, Cancer and Tuberculosis	Separate fact sheets prepared for each County contemplating a survey	Local Chest X-Ray Survey Community Organization Committees in each County
Why You Should Get A Chest X-Ray	Early detection of Heart Disease, Cancer and Tuberculosis through Chest X-Ray Survey	Montana Chest X-Ray Survey Professional Staff
What Now	What to Expect after the X-ray has been taken	Montana Chest X-Ray Survey Professional Staff
State Board of Health Services	Services and functions of the Board and its division	Executive Officer and each Division Director
Brucellosis	As title implies	Disease Control Division and Livestock Sanitary Board
Biennial Report—1950-1952	Report on Board's activities and Plans	Executive Officer and all Division Directors
50-year History of Montana State Board of Health	50-year history in brief summary: included in 1950-52 biennial report and re-prints were also made	Executive Officer and all Division Directors
Nutrition	A few pointers on child nutrition to be used in selected well-child conferences	Child Health and Public Health Nursing Division
Current Status of Chest X-Ray Survey	Original and revisions of % of participation and "suspect" findings in heart disease, tuberculosis, cancer as found in X-ray Survey	Chest X-Ray Survey Professional Staff
Community Organization Committees	Photographs showing various committees needed in community organization for each county	Chest X-Ray Survey Staff
Check list for an Understanding of an Adequate Community Tuberculosis Control Program	As title implies	Tuberculosis Control and Public Health Nursing Division
Radio and Spot Announcements for Chest X-Ray Survey	As title implies	Chest X-Ray Survey Staff
Early Discovery is the Key to the Cure of Lung Cancer	Points up importance of Chest X-Ray in Lung Cancer Detection	Montana Division, American Cancer Society
Ist Annual Report Montana Public Health District No. 1	See Title	Montana Public Health District No. 1 (Rosebud and Big Horn Counties)
Dietary Handbook for Small Hospitals and Nursing Homes in Montana	See Title	State Dietetic Association, and The Montana Agricultural Experiment Station

Articles for magazines other than State Board of Health publications were prepared as follows:

TITLE	MAGAZINE	PREPARED IN COOPERATION WITH
Narcotics and Alcoholism studied	Montanagram (State Department of Public Instruction)	Alcoholism Subcommittee on School Education
Districts check Public Health Nursing with State Board of Health	Montanagram	Public Health Nursing Division
Montana Chest X-Ray Survey	Montana Affairs (Montana Chamber of Commerce)	Chest X-Ray Survey
Swimmers Health and Safety Guarded	Montana Affairs (Montana Chamber of Commerce)	Environmental Sanitation Division
Pulp Mill Sites in State are studied by Touring Group	Montana Affairs (Montana Chamber of Commerce)	Environmental Sanitation Division
Water—Montana's Chief Asset for Development	Montana Affairs (Montana Chamber of Commerce)	Environmental Sanitation Division
Identifying Pollution: What is Stream Pollution and What are the types of Stream Pollution	Montana Affairs (Montana Chamber of Commerce)	Environmental Sanitation Division
Effects of Pollution on Public Water Supplies Tourist Health Protection	Montana Affairs (Montana Chamber of Commerce)	Environmental Sanitation Division
Surveying the Blackfeet	National Tuberculosis Association Bulletin	Chest X-Ray Survey Staff
Public Health Legislation	Montana Stockman and Montana P-TA Magazine	Local Health Services Division and Executive Officer
What is the Public Health Nurses' Role in Your Community's Health?	"To Your Health" (Montana Extension Service Publication)	Div. of Public Health Nursing
Power Company Employees Cooperate in Chest X-Ray Survey Program	Montana Power Company	Chest X-Ray Survey Staff
Status of Montana Local Health Services	National Health Council Newsletter	Local Health Services Division
Local Health Services	Farmer Stockman	Rural Health Committee of the Montana Medical Association and Local Health Services Division
Danger—Polluted Water	Montana Wildlife (Montana Fish & Game Dept.)	Environmental Sanitation Division
Montana's Respiratory Cancer Rate Gains	Montana Cancer Association News	Disease Control Division
Montana Cancer Rate throughout the State	(Montana Div. of American Cancer Society, Inc.)	Disease Control Division



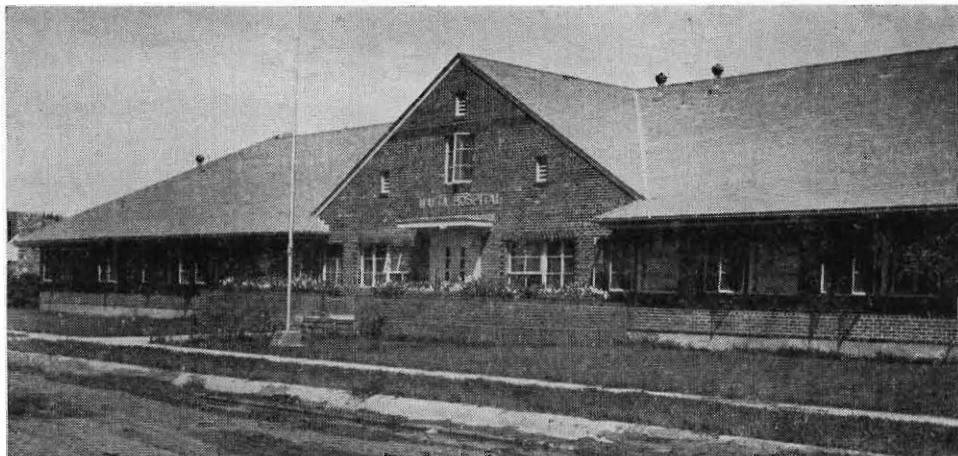
**PUBLIC HEALTH LIBRARY**—The division of Health Education maintains a health library (above) in the Mitchell Building. This library contains approximately 3,300 books, 90 periodicals (past & current volumes) and over 10,000 booklets, reprints of articles and pamphlets on a wide range of health topics. Material in this library is available to students, teachers, nurses, physicians or anyone else interested in health topics.

Health exhibits on a variety of topics are prepared by this division in limited quantity. During this biennium the following were made and exhibited on numerous occasions:

<b>SUBJECT</b>	<b>PREPARED IN COOPERATION WITH</b>
Local Health Services	Local Health Services Division
Expectant Mothers' Classes	Public Health Nursing and Child Health Division
Advisory Councils to the State Board of Health & Joint Interstate Agency Committees	Executive Officer
Montana Chest X-Ray Survey	Chest X-Ray Survey Staff
Mental Health	Child Health Services and Public Health Nursing Division
Indian Health Problems	Child Health Services Division
A Day With The Public Health Nurse	Public Health Nursing Division

## HOSPITAL FACILITIES

Robert J. Munzenrider,  
director



**MALTA HOSPITAL**—The 30-bed Malta hospital is the only hospital in Phillips county. It was built at a cost of \$263,407.08, of which \$111,710.94 was federal funds and the remainder local subscription.

### Hospital Survey and Construction

Federal funds allotted to Montana for hospital construction in this biennium amounted to \$400,000. This brings to \$1,608,279 the total received in federal funds for hospital construction since the start of the program in 1948. With the exception of a small reserve fund, all of this money was allocated to hospital construction projects with the highest priority under the Montana State Plan for Hospital Construction.

Twenty hospital projects in Montana have been granted federal construction financial assistance. (See table, page 123.) This leaves only five Montana communities in the top priority group under the original state Hospital Construction plan. Action has not been taken in these communities because the local share of the cost of hospital construction has not yet been developed.

During this biennium five hospital projects—two for full participation of the total project costs and three for partial participation—were developed and placed under construction. Five hospital construction projects, with a total of 94 new beds, were completed and placed in service in this period.

Sponsors of general hospital projects, built without federal assistance,

**Montana State Board of Health**  
**Summary of Project Construction Schedules**  
**June 30, 1954**

<b>PROJECT</b>	<b>Location</b>	<b>No. of Beds</b>	<b>Date Approved</b>	<b>Total Estimated Cost</b>	<b>Estimated Federal Share</b>	<b>Federal Payments to Date</b>	<b>Status</b>
Glacier County Memorial Hospital	Cut Bank	46	12/1/48	\$ 307,173.47	\$ 101,404.72	\$ 101,404.72	Opened 5/21/49
McCone County Hospital	Circle	10	12/9/48	170,462.07	55,414.02	55,414.02	Opened 4/5/51
Sweet Grass Community Hospital	Big Timber	13	6/3/49	162,851.07	54,283.69	54,283.69	Opened 9/20/50
Teton Memorial Hospital	Choteau	24	6/27/49	208,492.36	67,202.34	67,202.34	Opened 6/28/51
Toole County Hospital	Shelby	30	10/3/49	335,066.46	111,688.82	111,688.82	Opened 4/20/51
Carbon County Memorial Hospital	Red Lodge	27	10/10/49	324,544.39	106,648.13	106,648.13	Opened 5/9/51
Malta Hospital	Malta	30	3/17/50	263,407.08	111,710.94	111,710.94	Opened 12/10/51
Garfield County Hospital	Jordan	22	4/17/50	256,011.96	107,759.84	107,759.84	Opened 8/1/51
Daniels Memorial Hospital	Scobey	20	8/24/50	263,497.51	111,749.29	111,749.29	Opened 4/8/52
Wheatland Memorial Hospital	Harlowton	31	8/29/50	271,503.30	49,850.80	49,850.80*	Opened 5/1/51
Roosevelt Memorial Hospital	Culbertson	10	6/15/51	99,859.69	36,642.16	36,642.16*	Opened 4/2/51
Sanders County Hospital	Hot Springs	19	6/15/51	255,138.42	60,000.00	60,000.00*	Opened 4/14/52
Fallon County Hospital	Baker	19	10/16/51	301,600.00	117,730.41	117,730.41	Opened 6/24/53
Granite County Hospital	Philipsburg	10	10/15/51	233,870.15	93,489.76	93,489.76	Opened 2/17/53
St. John's Lutheran Hospital	Libby	26	6/5/52	313,693.66	30,326.26	30,326.26*	Opened 7/1/52
Sheridan Memorial Hospital	Plentywood	21	8/11/52	252,703.09	50,000.00	50,000.00*	Opened 2/27/53
Roundup Memorial Hospital	Roundup	18	8/11/52	225,629.63	77,908.86	66,180.01*	Opened 2/2/54
Livingston Community Hospital	Livingston	52	9/4/52	693,008.41	276,645.36	206,115.14	App. 90% Completed
Columbus Hospital	Great Falls		6/11/53	71,127.32	15,000.00	12,924.92*	Completed
St. Ann's Hospital	Anaconda	25	6/29/53	1,459,981.87	135,971.25		* Under Construction
<b>TOTAL</b>		<b>453</b>		<b>\$6,469,621.91</b>	<b>\$1,771,426.65</b>	<b>\$1,551,121.25</b>	

\*Participation in portion of project only.

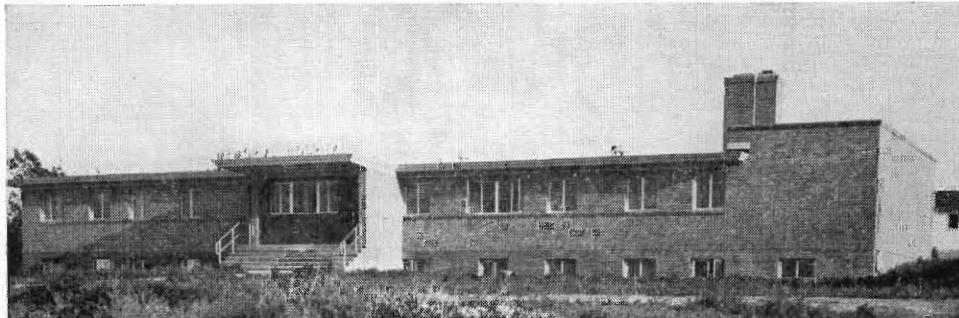
added 66 new beds in four new hospitals in this biennium. In the specialized hospital category: Casebeer Eye, Ear, Nose and Throat Hospital, Butte, completed an eight-bed eye, ear, nose and throat hospital; 65 beds were added to the Montana State Training School at Boulder; and construction was completed at Montana State Tuberculosis Sanitarium, Galen, to add 172 new beds, to replace existing beds at the institution.

No new hospital construction projects have been scheduled for federal financial assistance. All federal funds, allocated to Montana for hospital construction, have been placed on projects under construction and projects scheduled for construction. Funds available through the fiscal year 1955 have been allocated. Additional projects cannot be scheduled for construction until other federal funds become available for matching purposes on hospital construction projects.

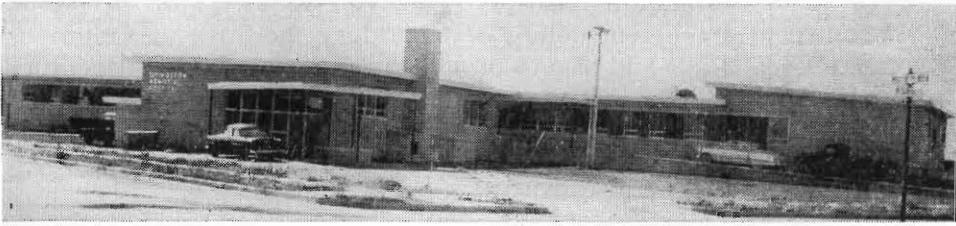
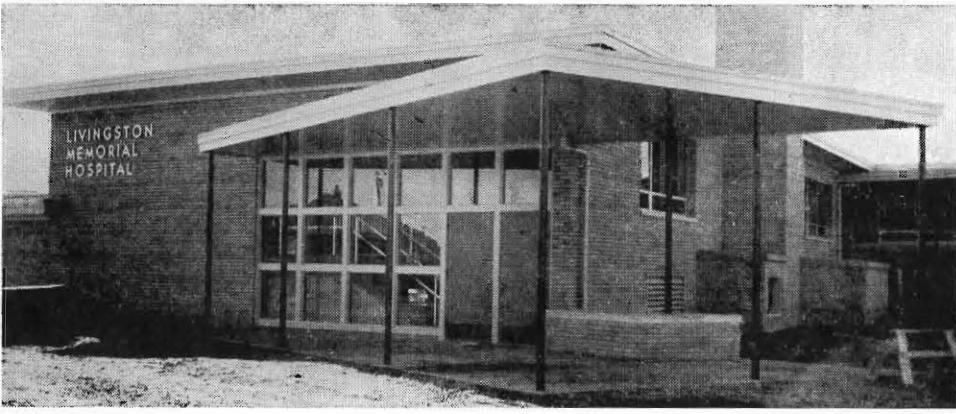
Requests for federal hospital construction financial aid are still being received. But, since the requests are coming from sponsors of hospital projects in the lower priority groups, they cannot be considered until: (1) federal funds become available; (2) projects in the highest priority group have received first consideration.

Montana's 1951 revision of the State Plan for Hospital Construction was approved by the U. S. Public Health Service, July 17, 1952. A 1954-55 revision of this plan is now being developed. The Hospital Advisory Council has recommended no major changes in the plan. Adjustments will be necessary in the hospital bed needs of communities as effected by changing conditions and increases in population.

During this biennium it was not possible to survey Montana's older hospitals (now classified as acceptable) to determine the need for replacement due to age, obsolescence or construction. As time and personnel will



**FALLON COUNTY MEMORIAL**—Built at a cost of \$301,600, the 19-bed Fallon County Memorial Hospital was opened June 24, 1953, at Baker, to serve the entire county. Federal hospital construction funds, administered through the Hospital Facilities division, totaled \$117,730.41. The remainder of the construction cost was developed by bond issue and local subscription.



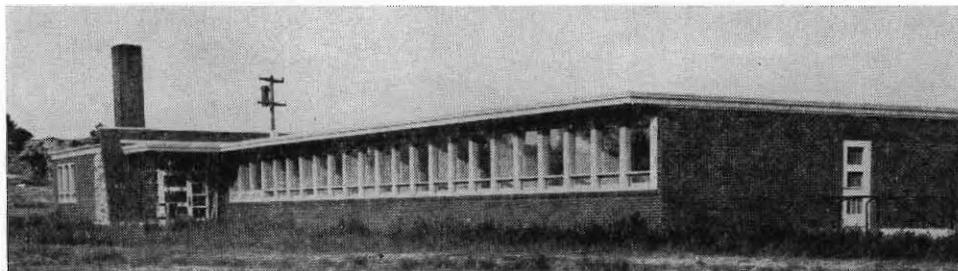
**LIVINGSTON**—The 52-bed Livingston Community Hospital was built at a cost of \$693,008.41 to replace the old Lott Hospital. Federal construction assistance in the amount of \$276,645.36 was approved September 4, 1952; the remainder of the construction cost was developed through local subscription.

permit, such a survey will be made and included in subsequent revisions of the state plan.

Periodic evaluation surveys, made by this division to determine the utilization of new general hospitals, have been of invaluable aid in designing new hospitals. These surveys will be continued.

Congress has amended the original Federal Hospital Survey and Construction Act, in extending the program through fiscal 1957. Amendments to the Act add chronic disease hospitals, diagnostic or treatment centers, rehabilitation facilities and nursing homes in the program. This will require a survey of these facilities in Montana, determining the state's needs and the development of a state plan and construction program. Montana will receive a minimum allotment of \$300,000 for construction in these new categories, plus the annual minimum allotment of \$200,000 under the general hospital construction program. A \$25,000 federal grant is expected to cover the administrative cost of the new program.

Hospital construction projects approved by the U. S. Public Health Service, submitted by the State Board of Health, in this biennium included: Sheridan Memorial Hospital at Plentywood and Roundup Memorial Hospital at Roundup. New projects scheduled in this period

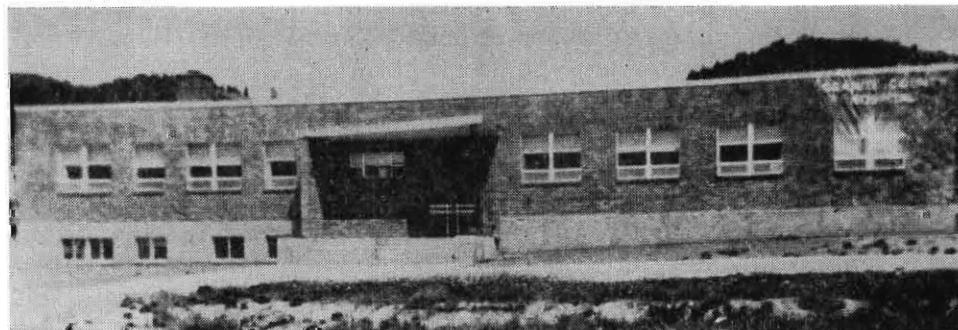


**ROUNDUP MEMORIAL** — The new 18-bed Roundup Memorial Hospital was opened February 1, 1954 to receive patients. The new hospital replaced the old Musselshell Valley Hospital. It is the only hospital in the county.

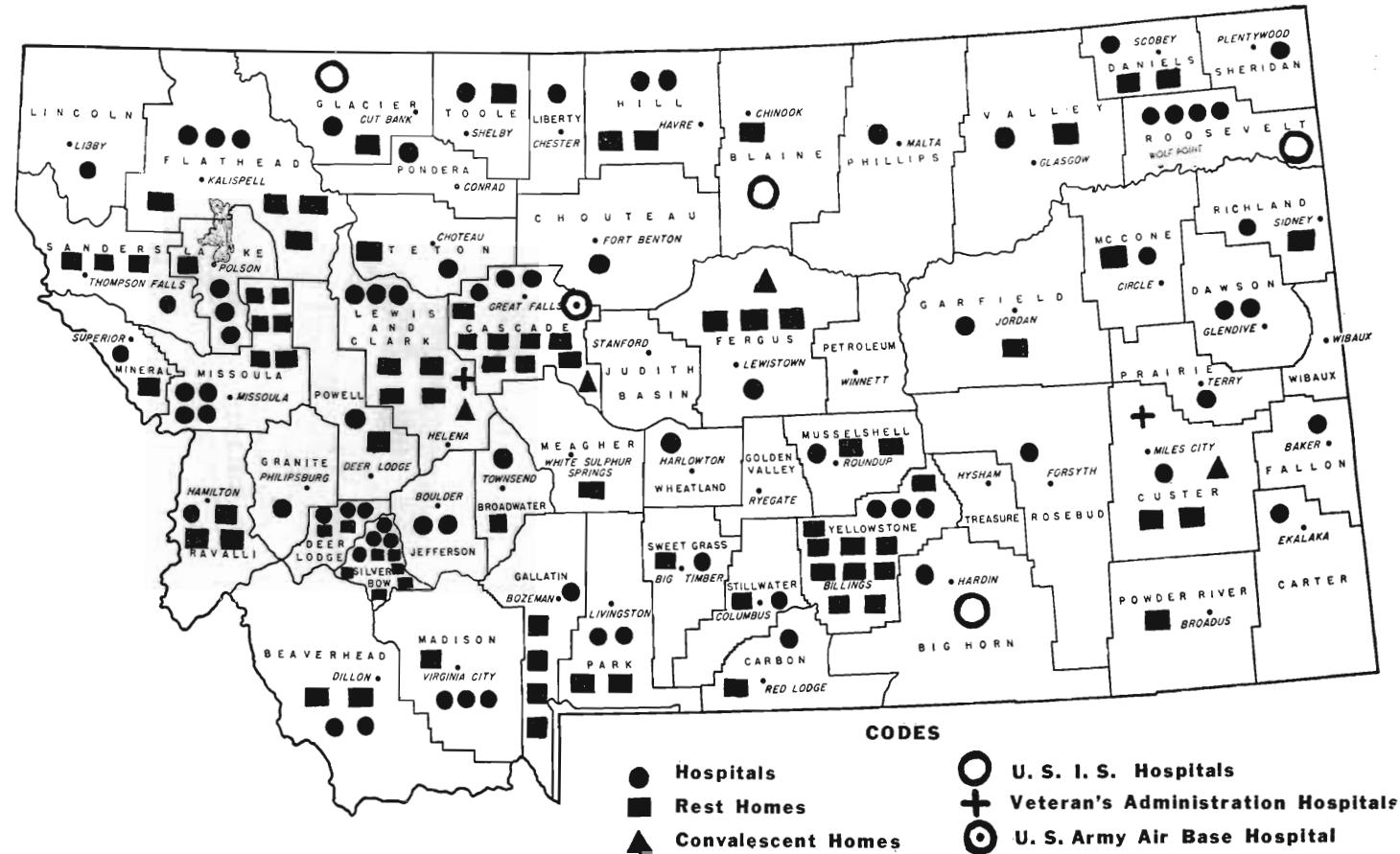
were: Livingston Community Hospital at Livingston; St. Ann's Hospital at Anaconda; and the remodeling of laboratory facilities at Columbus Hospital at Great Falls and also to provide a recovery room and facilities for isotopes.

Based on 27 project inspections by this division, \$655,370.13 in federal hospital construction assistance payments were made to sponsors of hospital projects. This brings to \$1,551,121.25 the payments made since the start of the program in Montana. Final payments have been made on all but four of the 20 projects in the state.

Direct services on projects and consultative services to other hospitals have been seriously hampered by a lack of personnel. In the past, this division had the services of three full-time professional staff members and a full-time secretary; since July, 1953, this division has consisted of a full-time director, a half-time nursing consultant and a half-time secretary.



**GRANITE COUNTY HOSPITAL**—Granite county's only hospital (above) was opened at Philipsburg to receive patients February 17, 1953. The 10-bed general hospital was built at a total cost of \$233,870.15; \$93,489.76 in federal funds, the remainder from a bond issue and local subscription.

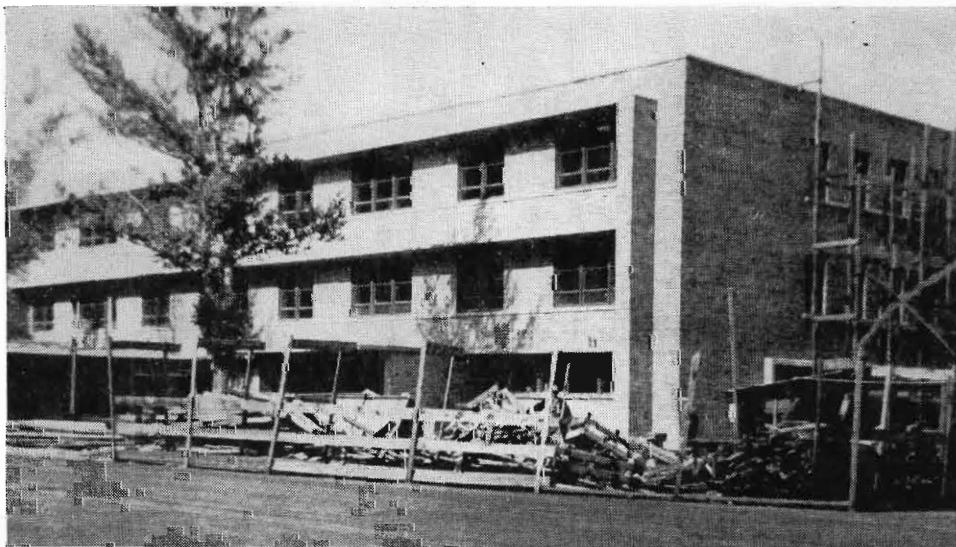


#### **Licensure of Hospitals and Homes for the Aged**

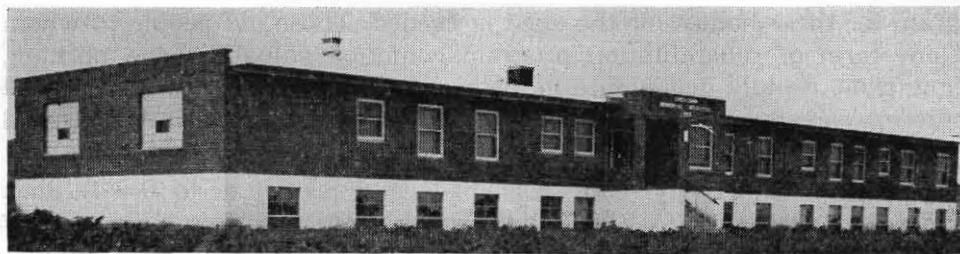
Hospital and nursing home inspections by the division are designed to aid operators and administrators to improve the physical plants and services to patients. The approach to inspections is through educational service rather than a policing operation. Often technical services of other divisions of the Board of Health are utilized in providing service to hospitals and nursing homes.

There were, as of June 30, 1954, 80 hospitals and related institutions with 6,330 beds, licensed in Montana by the State Board of Health. In the same period, 80 boarding or nursing homes for the aged, with 1,139 beds, were licensed.

With the advice of the Advisory Hospital Council, this division developed revised Hospital Licensing Standards in this report period. These revised standards were approved by the Board of Health in May and became effective July 1, 1954. All plans and specifications for new hospital construction and remodeling or alterations to existing facilities are required by law to be reviewed and approved by the State Board of Health. This requires study by the Board's medical staff. Consultative services are extended to sponsors of hospital projects and architects engaged in hospital design and planning.



**ANACONDA**—The \$1,459,981.87 addition and remodeling of St. Ann's Hospital in Anaconda was started in this biennium. The nearly-completed 35-bed addition is pictured above.



**SHERIDAN MEMORIAL**—This 21-bed general hospital was built at Plentywood at a cost of \$252,703.09. Federal hospital construction funds, administered through the State Board of Health division of Hospital Facilities, covered \$50,000 of this construction cost. The remainder was developed by local subscription. Operated by the Sheridan Memorial Hospital Association, it is the only hospital in the county.

Revised standards for chronic disease facilities and nursing homes will be developed in the next biennium. Likewise, licensing standards for boarding or nursing homes for the aged are to be revised.

Inspections of hospitals and homes for the aged will be continued and, within the limits of available personnel, consultative services will be extended to operators of these facilities.

The revised licensing rules and regulations are designed to provide the maximum protection for the patient, in order to carry out the purpose of the Montana Hospital Licensing Act: to "provide for the development, establishment and enforcement of standards" and to "promote safe and more adequate care of such individuals in hospitals."

Hospitals, in operation and licensed as of October 15, 1947 or since, are required to meet—within the next five years: July 1, 1959—new construction requirements detailed in the new standards developed and approved in this biennium. As of July 1, 1954, all hospitals are required to meet the requirement that fire retarding paints and furnishings be used in all new construction and for maintenance in existing facilities.

Considerable headway has been made during this report period in correcting certain "problem" hospitals and homes for the aged. Hospitals in general do not present the problems found in homes for the aged.

A dietary manual prepared by the Montana Dietetic Association and the Home Economic Research Dept. of Montana State College, in co-operation with the State Board of Health, has been distributed to all hospitals and homes for the aged. This handbook should prove most helpful to operators of homes for the aged. More than half the questions directed to the hospital nursing consultant, on her visits to these homes, have concerned diets, menus and food purchasing. A rehabilitation pro-

gram for these homes for the aged is needed. Those old people to whom some form of rehabilitation program could be valuable have nothing, and, thus, rapidly degenerate to an inactive level. Visits by the hospital nursing consultant to the Montana State Home for the Senile Aged reveal less senility than is seen in the privately operated homes in the state.

A nursing activity study was made and presented to the Billings Hospital nursing staff by this division's hospital nursing consultant. If time and staff would permit, much could be achieved by such studies. However, the activity is time-consuming of both the hospital personnel and the consultant.

Due to personnel limitations, it has been possible to make a minimum of one inspection annually of each hospital and home for the aged. Sufficient inspections are not possible to properly uphold the standards. This situation will become more acute when the new Hospital Licensing Standards are in effect.

Good hospital planning at the community level continues to be a problem. While much emphasis has been placed on this in the past and considerable educational work has been accomplished, proper planning still remains a problem.

## LOCAL HEALTH SERVICES

L. S. McLean,  
director



**RESTAURANT INSPECTION**—James O. Lodge, Missoula, District No. 3 sanitarian, puts a restaurant grading card in the window of a Misoula restaurant following a routine inspection. A new restaurant ordinance passed by the Missoula Board of Health in 1952 has facilitated the grading and improvement of restaurant sanitation in the area.

Montana's number one public health problem continues to be the lack of adequate local public health program and services for all of the state's citizens. Assisting in the development of new and the improvement of existing local public health programs remains one of the basic functions of the State Board of Health.

Approximately 149,715 Montanans enjoyed the advantages of living in areas served by full-time local public health departments, as of June 30, 1954. This represents approximately one-fourth the state's population.\* Another 55% are served by local boards of health who employ, in support of part-time medical health officers, one or more public health nurses and/or sanitarians.

During this biennium, progress has been made in the development of full-time local health departments: establishment of Montana Public Health District No. 2 (Lake and Sanders counties) and Montana Public Health District No. 3 (Missoula and Mineral counties). Montana Public Health District No. 1 (Big Horn and Rosebud counties) completed its second year of operation in June, 1954. A proposal to expand this district, to include Treasure County, is being considered.

In this report period, seven counties secured or re-established public health nursing or sanitarian positions; in two other similar part-time jurisdictions such positions were temporarily discontinued. At the close of the biennium, six locally-budgeted staff opportunities remained unfilled in part-time jurisdictions.

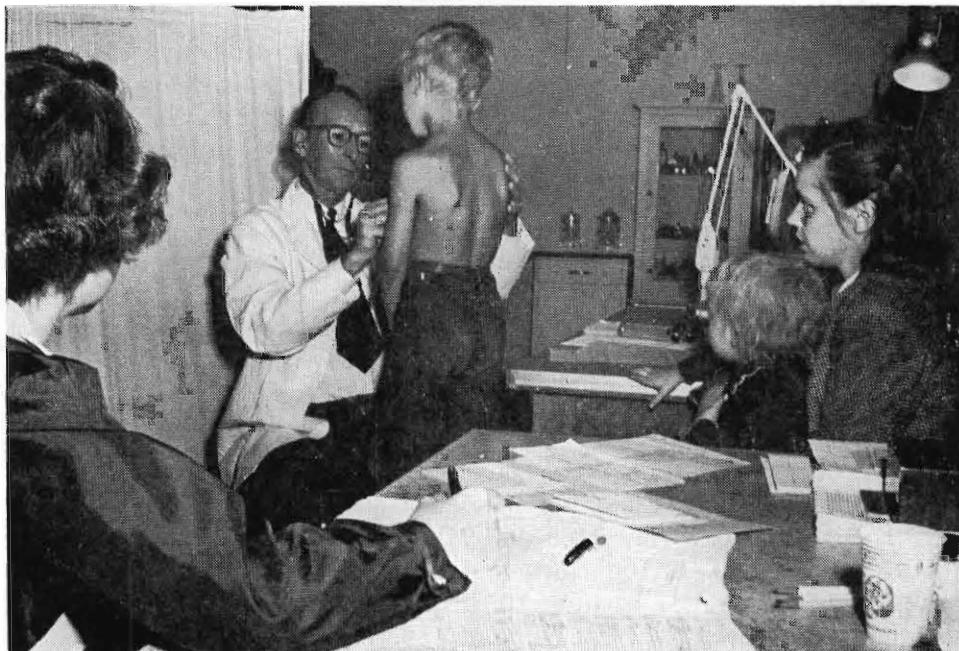
\*Montana population estimates, 1953, from the State Board of Health, Bureau of Vital Statistics.

The map on page 137 reflects the status of the public health services provided by local areas at the end of fiscal 1954 (Figure 1). Progress can be evaluated by relating this map to the extent of local health services at the close of fiscal 1952 shown in Figure 2.

Montana Public Health District No. 2 was organized in June, 1953, by action of the county commissioners of Lake and Sanders counties. The pattern of development of this new district was similar to that of District No. 1, established 1952. (1)

Financial support for this new district was pooled from (a) the general funds of the two participating counties, (b) state funds allocated through the State Board of Health and (c) the U. S. Bureau of Indian Affairs. The budgeted six-man staff comprises a full-time medical health

(1) 26th Biennial Report, 1950-52, Montana State Board of Health; page 133.



**STARTING A SCHOOL HEALTH RECORD**—Every child starting to school and every new student in Great Falls' School District No. 1 is required to have a physical examination before being admitted to class. Dr. H. V. Gibson, city-county health officer, is shown giving a new student a physical examination. The public health nurse (left) records the information dictated by Dr. Gibson on the child's school health record. This continuing record will follow the child through school to graduation.

TABLE I  
LOCAL—STATE PARTICIPATING BUDGETS and EXPENDITURES  
1951-1952

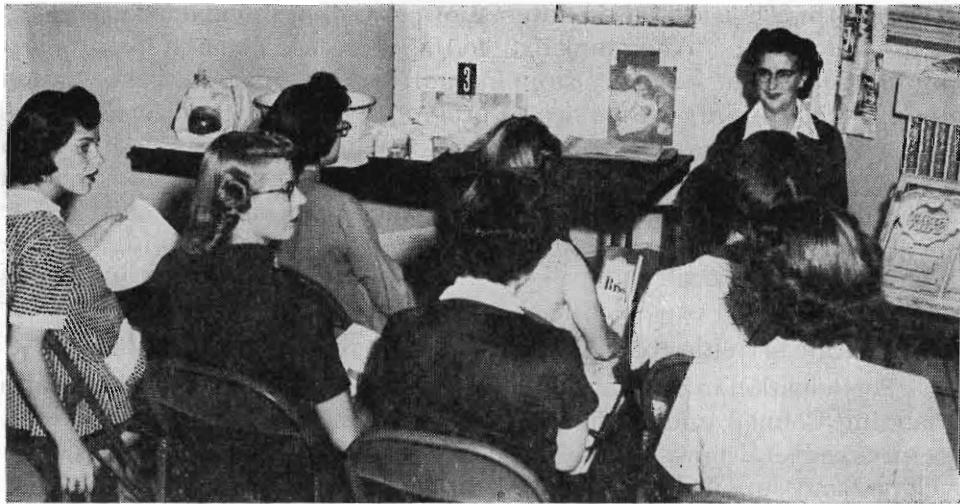
LOCALITY	Pop.*	BUDGETED						EXPENDED				
		(1) FULL-TIME	(2)	(3) LOCAL	(4) STATE	(5) ST. %	(6) TOTAL	(7) Per Cap.	(8) LOCAL	(9) STATE	(10) TOTAL	(11) % of 6
Big Horn County	9,799	20,020	5,908	23.0	26,000	2.65	17,482	5,222	22,704	87.3	2.32	
Cascade (Ci.-Co.)	52,408	60,982	10,240	14.4	71,222	1.35	58,661	9,868	68,529	96.2	1.31	
Gallatin (Ci.-Co.)	21,718	25,988	7,172	21.6	33,160	1.52	24,315	6,699	31,014	93.5	1.43	
Missoula (Ci.-Co.)	34,982	38,499	8,498	18.0	46,997	1.34	33,213	7,289	40,502	86.1	1.16	
Sub-Total	118,907	145,489	31,890	17.9	177,379	1.49	133,671	29,078	162,749	91.7	1.37	
<b>UN-ORG. Counties</b>												
Blaine County	8,473	6,490	1,710	20.9	8,200	.96	1,388	367	1,755	21.4	.21	
Custer County	12,619	6,380	2,035	24.2	8,415	.67	4,334	1,384	5,718	67.9	.45	
Hill County	14,281	3,010	1,620	35.0	4,630	.32	633	341	974	21.0	.07	
Lake County	13,767	6,196	2,500	28.7	8,696	.63	6,068	2,500	8,568	98.5	.62	
Lincoln County	8,672	3,400	1,350	37.0	4,650	.54	2,835	1,049	3,884	83.5	.45	
Musselshell County	5,392	1,891	1,848	49.4	3,739	.69	1,503	1,468	2,971	79.4	.55	
Pondera County	6,429	2,910	1,740	37.4	4,650	.72	2,819	1,684	4,503	96.8	.70	
Ravalli County	13,021	2,425	1,950	45.0	4,375	.33	2,453	1,950	4,403	100.6	.34	
Richland County	10,343	5,926	2,500	29.7	8,426	.81	3,733	1,578	5,311	63.0	.51	
Sanders County	6,926	2,710	1,200	30.7	3,910	.56	-----	-----	-----	-----	-----	
Sheridan County	6,623	2,301	1,484	39.2	3,785	.57	1,051	678	1,729	45.6	.26	
Teton County	7,130	2,935	2,215	43.0	5,150	.72	2,225	1,902	4,127	80.1	.58	
Valley County	11,320	6,210	2,500	28.7	8,710	.77	5,104	2,054	7,158	82.2	.63	
Sub-Total	124,996	53,383	24,552	31.5	77,935	.62	34,404	16,955	51,359	65.9	.41	
<b>TOTAL</b>	<b>243,903</b>	<b>198,873</b>	<b>56,442</b>	<b>22.2</b>	<b>255,315</b>	<b>1.05</b>	<b>168,075</b>	<b>46,033</b>	<b>211,608</b>	<b>82.8</b>	<b>.87</b>	

\* 1950 Census

TABLE II  
LOCAL—STATE PARTICIPATING BUDGETS and EXPENDITURES  
1953-1954

LOCALITY	Pop.*	BUDGETED					EXPENDED					
		(1) FULL-TIME	(2)	(3) LOCAL	(4) STATE	(5) ST. %	(6) TOTAL	(7) Per Cap.	(8) LOCAL	(9) STATE	(10) TOTAL	(11) % of 6
District No. 1 .....	16,394	32,456.00	9,754.00	23.10	42,210.00	2.57	24,039.54	7,208.24	31,247.78	74.03	1.91	
(Bigh. & Rosebud)												
District No. 2 .....	20,818	19,895.00	10,325.00	34.17	30,220.00	1.45	17,270.69	8,964.50	26,235.19	86.81	1.26	
(Lake & Sanders)												
District No. 3 .....	37,574	47,768.00	10,060.00	17.40	57,828.00	1.54	46,581.86	9,811.66	56,393.52	97.52	1.50	
(Msla. & Mineral)												
Cascade County .....	53,027	71,247.94	9,787.56	12.08	81,035.50	1.53	67,829.80	9,331.04	77,160.84	95.21	1.45	
Gallatin County .....	21,902	29,652.00	5,708.00	16.14	35,360.00	1.61	25,579.41	4,923.07	30,502.48	86.26	1.39	
Sub-Total .....	149,715	201,018.94	45,634.56	18.5	246,653.50	1.65	181,301.30	40,238.51	221,539.81	89.80	1.48	
<b>UN-ORG. COUNTIES</b>												
Blaine .....	8,516	7,503.00	1,197.00	13.8	8,700.00	1.02	4,019.91	643.61	4,663.52	53.60	0.53	
Custer .....	12,661	7,995.00	1,455.00	15.4	9,450.00	0.75	5,867.39	1,068.07	6,935.46	73.39	0.55	
Hill .....	14,285	3,566.00	1,000.00	21.9	4,566.00	0.32	3,170.67	889.11	4,059.78	88.91	0.28	
Lincoln .....	8,693	4,232.00	1,000.00	19.1	5,232.00	0.60						
Pondera .....	6,392	3,813.00	1,352.00	26.2	5,165.00	0.81	3,560.12	1,262.48	4,822.60	93.37	0.75	
Ravalli .....	13,101	3,205.00	1,170.00	26.7	4,375.00	0.33	2,712.53	988.05	3,700.58	84.58	0.28	
Richland .....	10,366	7,135.00	2,000.00	21.9	9,135.00	0.88	4,247.70	1,191.13	5,438.83	59.54	0.53	
Teton .....	7,232	3,888.00	1,662.00	29.9	5,550.00	0.77						
Valley .....	11,353	11,150.00	1,750.00	13.6	12,900.00	1.14	10,335.68	1,626.91	11,962.59	92.73	1.05	
Sub-Total .....	92,599	52,487.00	12,586.00	19.3	65,073.00	0.70	33,914.00	7,669.36	41,583.36	63.90	0.45	
<b>TOTAL</b> .....	<b>242,314</b>	<b>253,505.94</b>	<b>58,220.56</b>	<b>18.7</b>	<b>311,726.50</b>	<b>1.29</b>	<b>215,215.30</b>	<b>47,907.87</b>	<b>263,123.17</b>	<b>84.40</b>	<b>1.09</b>	

\* 1950 Census



**CLASSES FOR MOTHERS**—Limited public health services are supplied in many areas of the state without full-time local health departments. An example: Mrs. Emma Wright, Havre, Hill county public health nurse, conducts a class (above) for expectant mothers.

officer, a clerk-stenographer, a sanitarian and three public health nurses.

About this same time, in the summer of 1953, the county commissioners of Mineral county moved to join with Missoula's city-county health department to create Montana Public Health District No. 3. Such amalgamations are proving a most effective approach to some local public health needs: merging existing part-time facilities by contractual participation with an existing full-time health department in an adjacent area. It is the best means for thinly-populated areas to meet local health needs in a practical and effective operation within their tax capacities.

This combined health jurisdiction concept was also evident, in this biennium, in the sharing of a sanitarian's services in three two-county areas. Population and tax resources of some of these counties often do not justify one county alone bearing the cost of a full-time sanitarian. Richland and Dawson counties, at the start of fiscal 1954, contracted to co-operatively finance the employment of a sanitarian to serve these two counties. Similar arrangements were developed by Beaverhead and Madison counties and by Hill and Blaine counties.

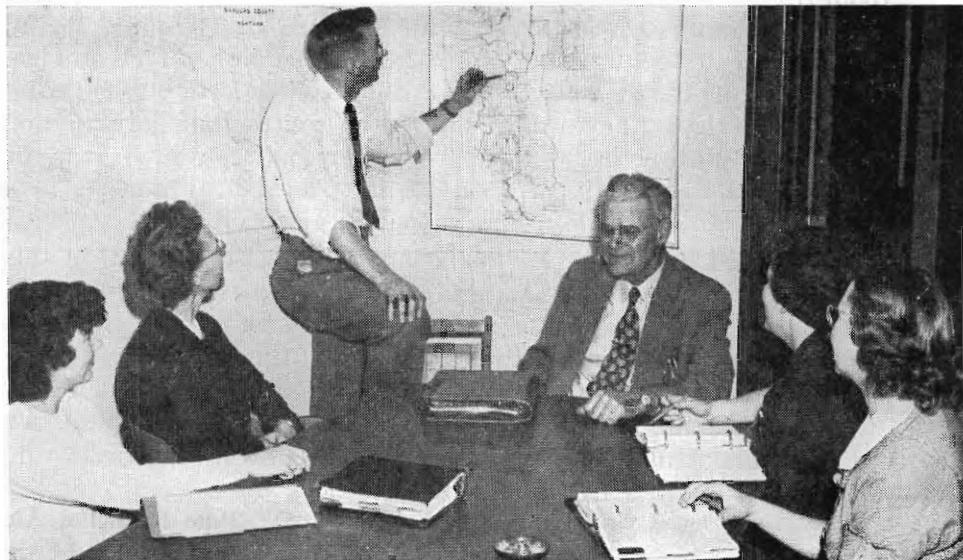
#### **State Financial Aid**

To make available to a greater number of counties needing and requesting State Board of Health financial assistance in their initial or continuing assumption of such programs, a slightly revised formula for the distribution of the limited amount of funds for this purpose was pro-

posed by this Division. In the interest of promoting the extension of local health services and to accommodate to this increased demand for supporting funds, without suddenly stopping our current financial participation to some static county public health programs, a reduced aid formula was adopted by the Board at its May, 1953, meeting. This was in line with already established policy which emphasizes that financial aid is not on a permanent subsidy basis. However, financial aid has continued at the same level as that of the preceding year for local boards of health showing improvement in local staff services. The detail of participating funds contracted for and expended is shown in Tables 1 and 2.

Routine activities of this division in this report period included:

Participation in meetings of and cooperation with the Montana Health Planning Council and community health councils; pamphlets, exhibits, lectures, general news releases and other interpretative information developed and supplied to many health agencies and groups in the state; assistance in state and local on-the-job training programs; assistance in recruiting qualified personnel for local health department staffs; maintaining a current directory of all public health personnel in the state; and aid to other divisions in program planning, in field consultation and in direct service for which the State Board of Health is responsible. Arrangements were completed by this division to permit graduate public health



**TEAM APPROACH TO HEALTH**—Montana Public Health District No. 2 (Lake and Sanders counties) sanitarian Kenneth Read explains a sanitation problem to other members of the local health department staff.

FIGURE No. 1

BUDGETED PUBLIC HEALTH POSITIONS, IN MONTANA COUNTIES  
June 30, 1954 (at End of This Biennium)

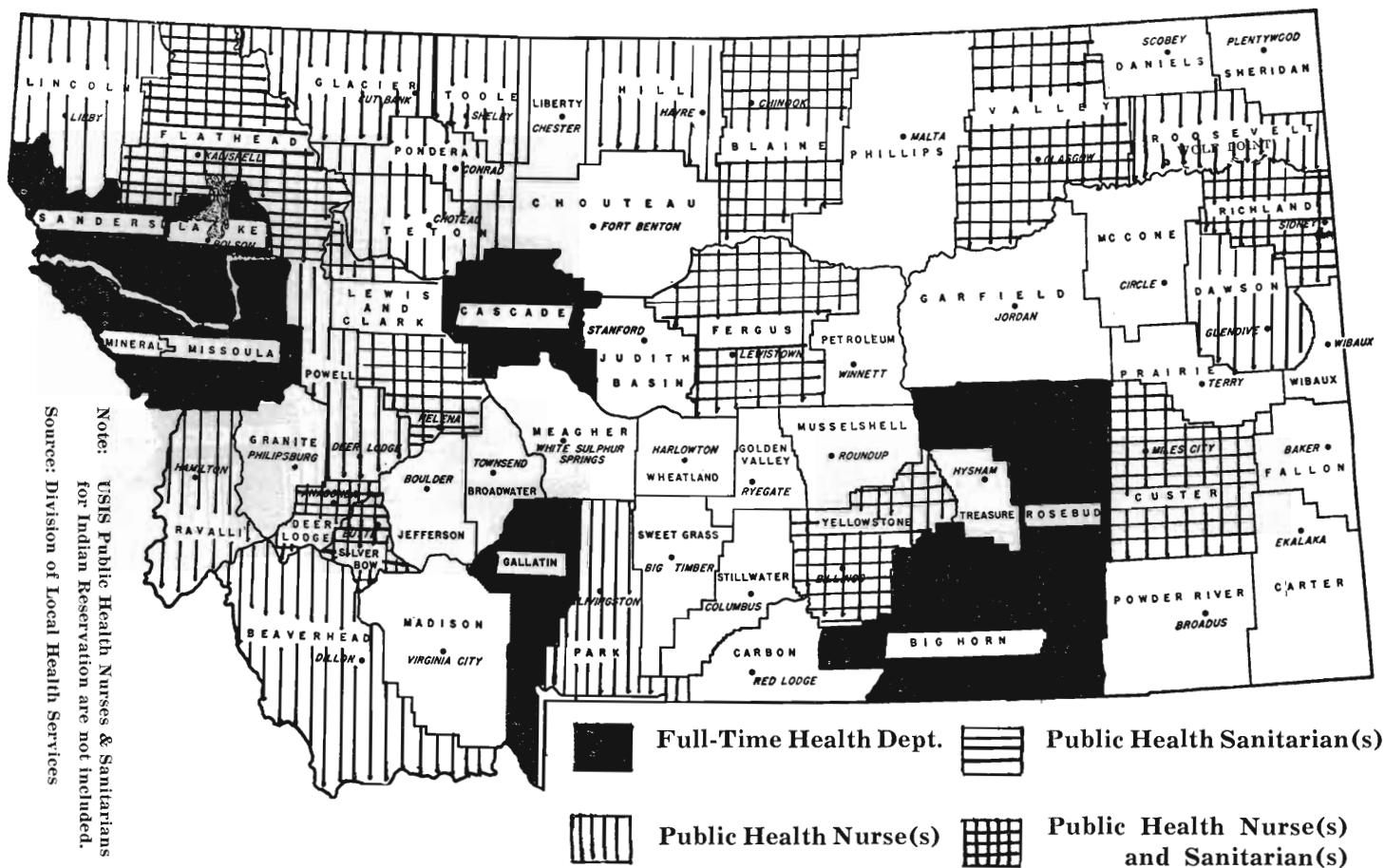
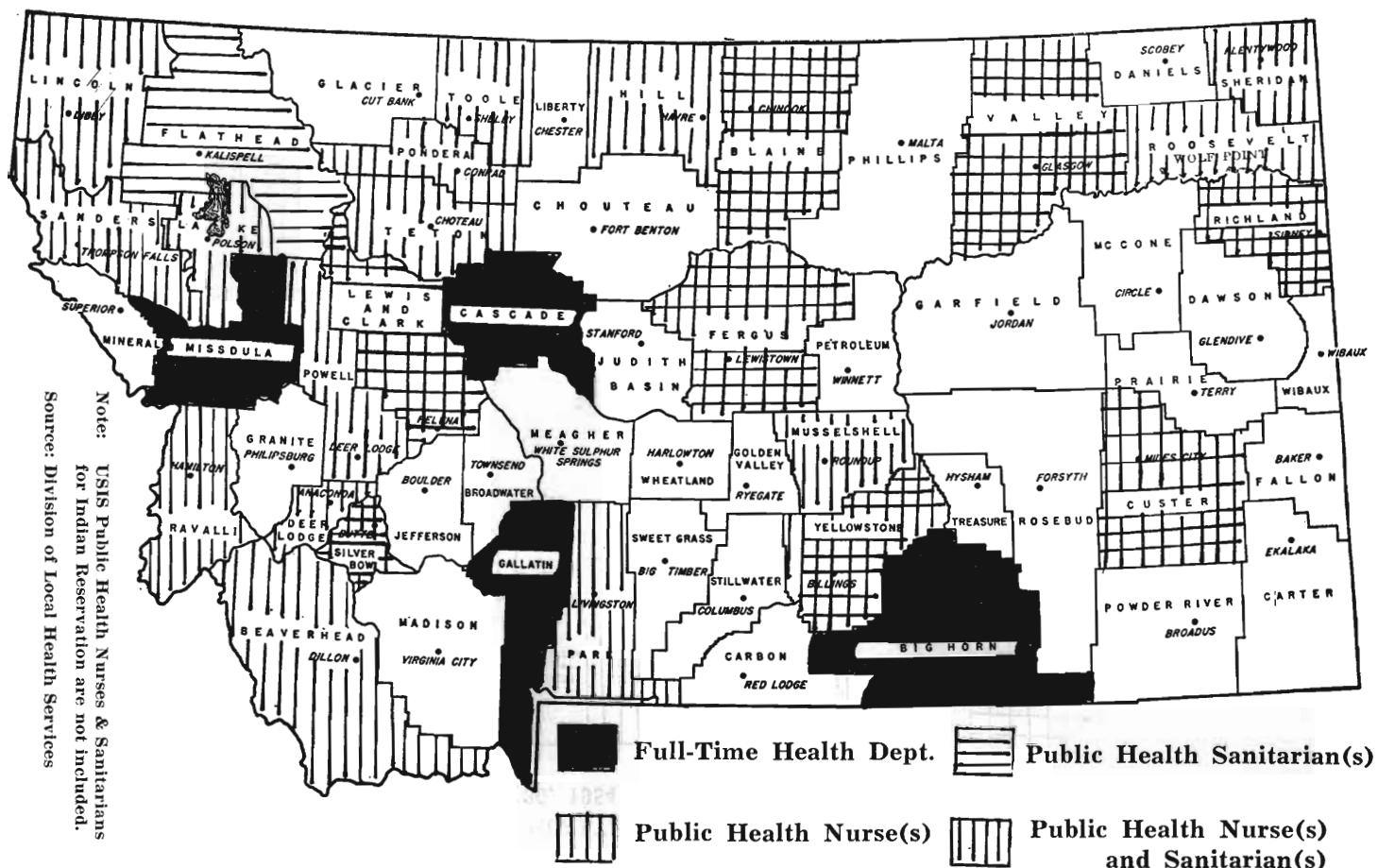


FIGURE No. 2  
BUDGETED PUBLIC HEALTH POSITIONS, IN MONTANA COUNTIES  
June 30, 1952 (at End of Last Biennium)



Note: USIS Public Health Nurses & Sanitarians for Indian Reservation are not included.

Source: Division of Local Health Services

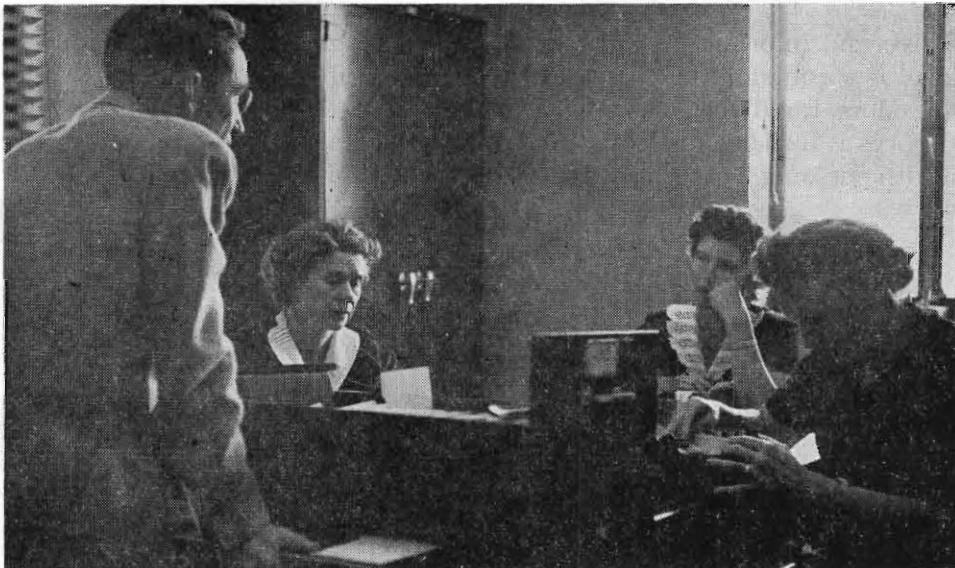
training for a local full-time health officer, to better qualify him for service to his area. This was supported by a State Board of Health scholarship.

In April, 1954, the second conference of local health officers with state staff was conducted in Helena to review current problems, clarify existing policies, develop new plans and improve program practices and procedures. A state-wide Association of Public Health Physicians was organized at this conference.

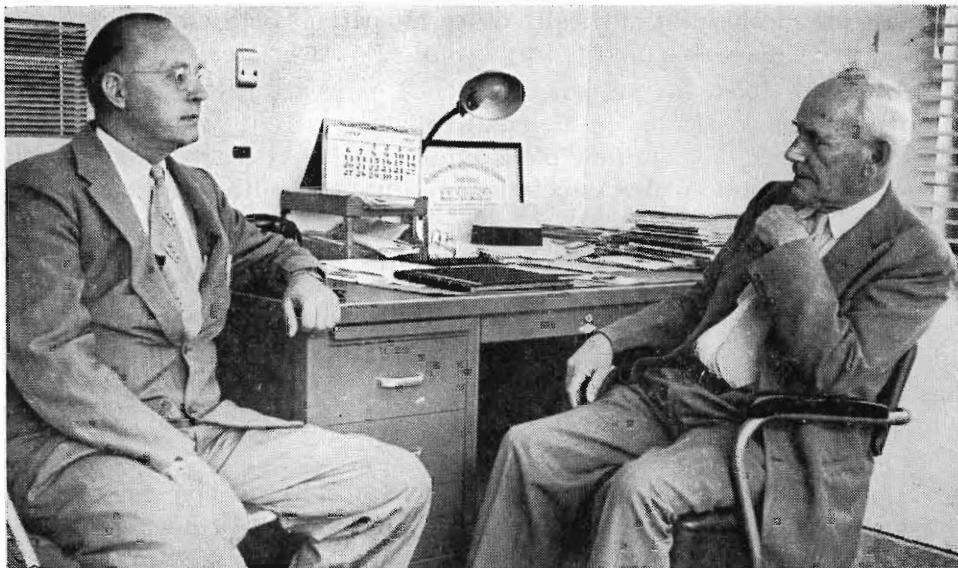
#### Staff

Major State Board of Health medical staff vacancies in the Division of Disease Control, in this report period, resulted in the assignment of additional work and responsibilities to the director of this division. This has allowed less time for attention and effort to local health services which, in turn, is somewhat reflected in slower progress toward improving local public health services.

Local and state representatives, and in turn the people they serve, must understand and appreciate the values of local public health services in solving environmental and preventable illness problems. Better primary preparation of local residents is essential before establishment of needed local public health services occurs. The continuing lag in development of



**CHECKING THE RECORD**—Three city-county health department public health nurses talk with Dr. Carl W. Hammer, Bozeman-Gallatin County health officer, as they plan a day of home visits. From the left: Dr. Hammer, Mrs. Dorothy Howells, Mrs. Harriet Haldorson, and Mrs. Artemis Olson.



**PLANNING**—Dr. B. K. Kilbourne, (right) Hardin, District No. 1 health officer, plans the public health activities of his staff in close cooperation with Dr. Roy O. Yeatts, Hardin, president of the District Board of Health.

active and informed health councils and like groups at the community level is a contributing factor to such lack of understanding.

More rapid progress in the development of improved local health services is difficult in the face of continuing shortages of qualified public health personnel, especially medical officers, sanitarians and public health nurses.

#### Plans

In the next biennium continuing effort will be made to stabilize newly-established county and district health departments as well as part-time programs. Emphasis will be directed at better preliminary state-local staff planning.

In an effort to simplify expenditure and accounting practices, this division plans to devote staff time to preparing a fiscal guide for state-local financially participating agencies. A preliminary draft of a local health department activity report is to be developed and offered to the state organization of local health officers for correction and approval. Conferences of local health officers and State Board of Health staff are planned for fiscal 1955 and 1956.

Revision of existing Standards to more clearly specify the amount and duration of State Board financial participation to which local boards of health are eligible will be undertaken. Similarly, additional criteria for

better measuring just what constitutes local program progress will be developed to facilitate decisions regarding justification for continuance of these supportive funds.

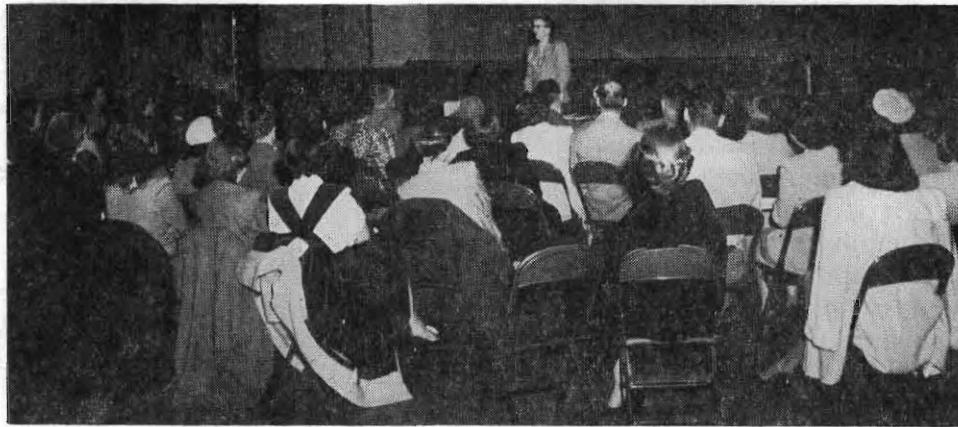
Assistance will be given to the re-drafting of the 1953 bill to amend the 1945 Local Health Department Enabling Act for presentation to the next session of the state legislature.

It is intended that the opportunities available to work with those community groups, who will have already had satisfying experiences in the community effort involved in the Chest X-ray Survey, will be utilized to augment our other attempts at strengthening and improving needed public health services. In a somewhat identical approach, closer and more active participation from the Montana Health Planning Council will be sought.

**Related Activities.** The Division Director served as an ex-officio member of the Montana Medical Association's committees on Tuberculosis and on Rural Health. In the latter assignment he attended the National Rural Health Conference held in February of 1953 at Roanoke, Virginia. Also, in these capacities, several related reports, with emphasis on the public health aspect, were prepared for state release through popular channels.



**SAFETY AWARD**—Dr. Mary E. Soules, (left) District No. 3 health officer, and Mrs. Carl Heinrich, Missoula, read the Certificate of Commendation awarded the Missoula County Home Safety Committee in November, 1953, by the National Safety Council. Dr. Soules and Mrs. Heinrich served on the committee.



**MISSOULA PRE-SCHOOL "PARTY"**—Dr. Mary E. Soules, health officer, District No. 3 (Missoula and Mineral counties), talks to a group of parents at one of Missoula's pre-school roundup "parties." Conducted in the summer, the roundup "parties" permit children starting school in the fall to get to know their school environment. At the same time, local health department personnel have an opportunity to talk with the parents about the importance of children visiting the family dentist and physician to insure the best of health when they start school.

The Director participated in the annual conference of the Association of State and Territorial Directors of Local Health Services in March, 1954, held at Biloxi, Mississippi. This conference is now scheduled every two years.

As a member of the Montana Medical Association, he represented them at most of the called meetings of the State Committee on Public Health Nursing Affiliation. Attendance and participation was afforded various other state-wide health group discussions, including two annual conventions of the Montana Public Health Association, the Montana County Commissioners Association, and the Montana Branch of the American College of Surgeons.

## PUBLIC HEALTH NURSING

Wava L. Dixon,  
director



**FORMULAE STERILIZATION**—A public health nurse explains to a volunteer worker and a mother at a well-child conference at St. Xavier, the correct technique for terminal sterilization of infant formulae. The nurse demonstrates the technique is easy with materials available in any kitchen.

Public health nursing services are basic to effective public health. The work of the public health nurse is quite different from the routine of the hospital nurse; little of the public health nurse's time is devoted to actual bedside nursing.

Her job is more concerned with guiding families to better health by teaching the prevention of illness and care of the sick in the home.

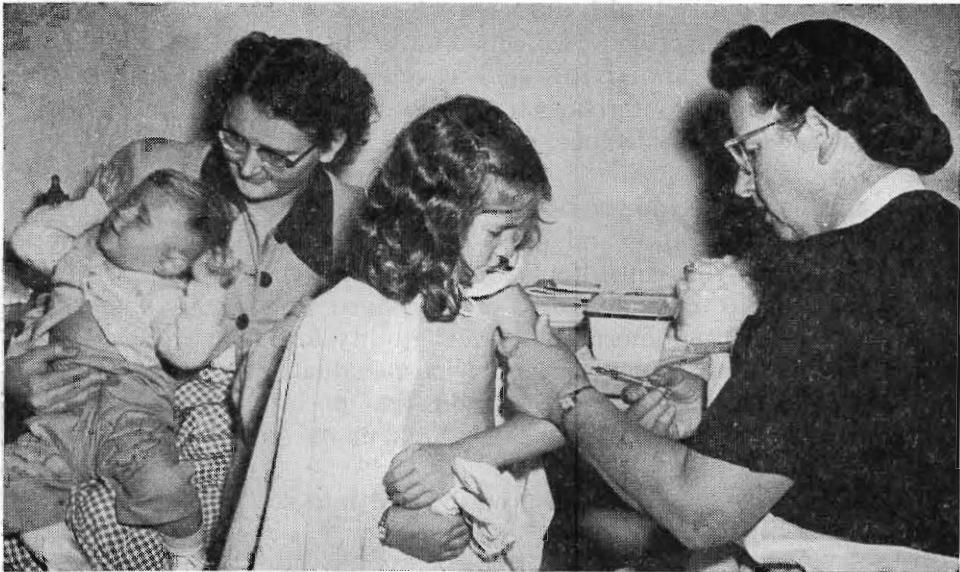
Unlike many thickly-populated regions with organized community clinics for diagnosis and treatment, in Montana the public health nursing service to families is through and with the family physician. She works closely with teachers, welfare workers and others who assist the family in protecting and improving the health of the members of the family.

She helps people help themselves with their health problems.

In working closely with the private physician, the public health nurse can point out to the family or individual the need for medical care when such treatment is needed. Public health nurses aid the family in carrying out the physician's instructions in the home.

Because of the large land area and small population, it is important in Montana that the state's public health nurse-population ratio makes the public health nurse's teaching and demonstration work of even greater importance.





**IMMUNIZATION**—A Great Falls city-county health department public health nurse gives a child an immunization (under the direction of the health officer) at one of the health department's regular Well-Child Conferences in their offices in the Civic Center.

#### **Consultation-Supervision**

Restoration of one of two previously eliminated consultant positions in this division, has permitted increased work in the disease control program. Consultant assignments are to be adjusted to eliminate some of the details of this program and permit meeting more than the immediate demands. This will increase substantially the supervisory time for two consultants, now faced with the responsibility for 26 Montana counties with public health nursing services.

Consultation and supervision of public health nursing in all areas of the state—including those with full-time health departments and local public health nursing—has been improved in this biennium. A well-defined program has been planned, carried out and evaluated.

In determining consultation and supervisory needs, many factors were considered: the number of nurses, their educational background, experience and performance. Area conferences were conducted for local public health nurses to permit them to study and work together and function as they would if they were employed on the same staff. Five such conferences were conducted on school health; one was devoted to speech problems. Six other conferences were conducted for public health nurses on prenatal needs: one on the topic of newborn; three on preschool children; and two on communicable diseases.

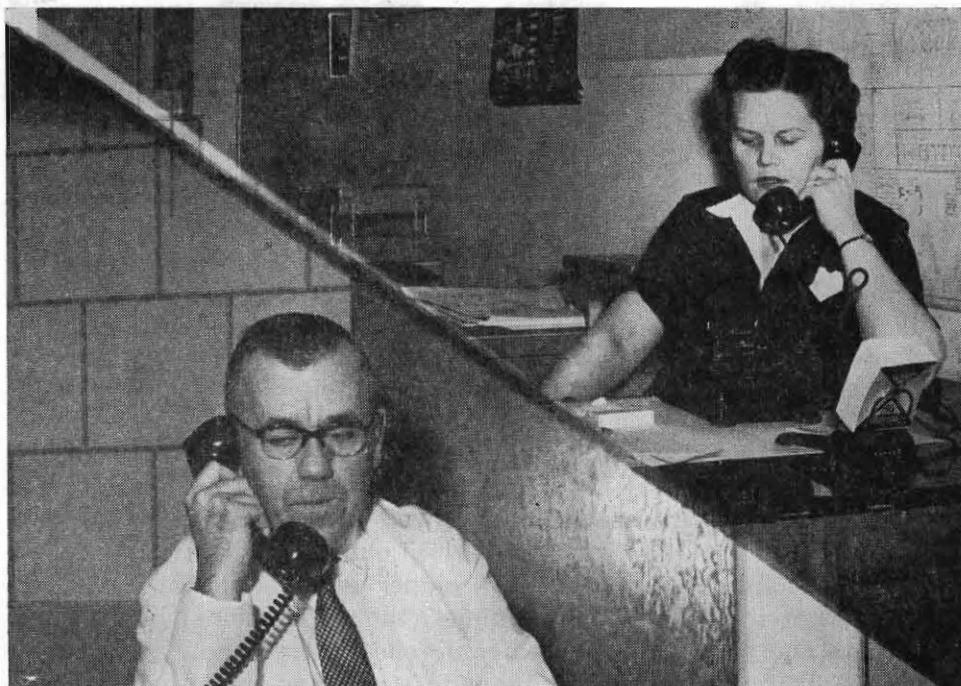
Many local public health nurses work without any local supervision. During the two-year period, two consultants on the staff of this division spent 569 days in field activities and traveled more than 45,000 miles in providing individual conferences to give local public health nurses essential supervision and assistance.

#### Hospital Nursing

In this report period the hospital nursing consultant made 105 visits to Montana's 75 hospitals and 76 visits to the state's 71 nursing homes.

Objectives of this consultant's work, in this report period, included: visiting every hospital and home for the aged to evaluate findings of previous years and to determine their eligibility for licensure; evaluation of communities' needs for hospital services; evaluate the needs for homes for the aged; promote terminal sterilization of infant formulae in all hospitals; and observation of weak points in nursing care of the premature infant.

It is suggested that Montana be divided into sections and intensive



**PHYSICIAN-NURSE COOPERATION**—A Missoula physician and public health nurse illustrate the fact that Montana's public health nursing service is developed through the private physician. She often points out to the family or individual the need for medical care and then aids the family in carrying out the physician's instructions in the home.

work be done in improving the environment in homes for the aged and hospitals in one selected area and then in another until the entire State is covered.

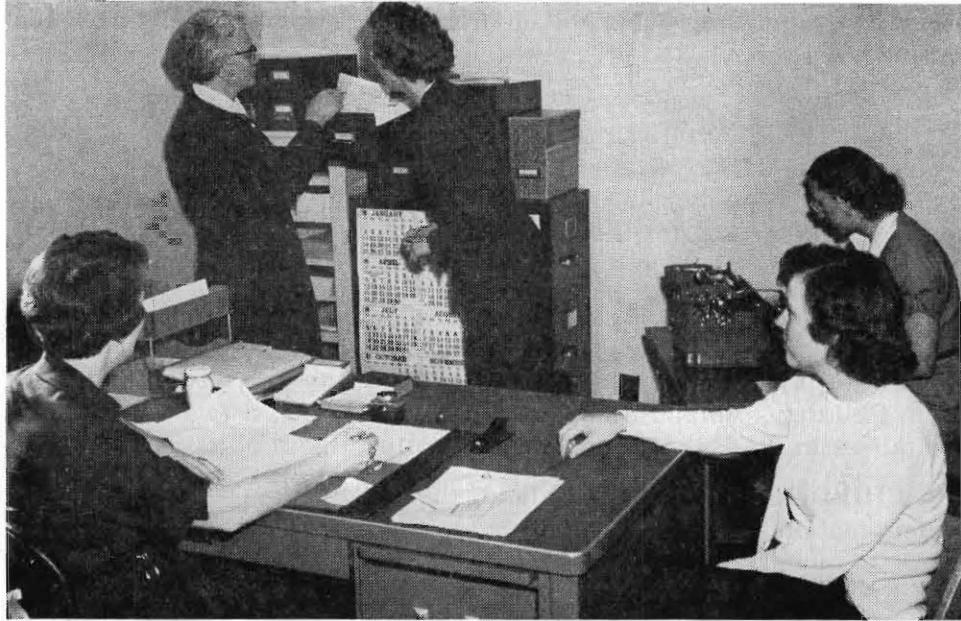
In this biennium, 13 more hospitals adopted the terminal sterilization technique for the preparation of infant formulae. This makes a total of 43 Montana hospitals using this technique, designed for convenience and maximum protection for the baby.

During the second half of this report period, 38 hospitals received maternity and infancy consultation through staff meetings and class teaching. After two nurses from the Billings area attended advanced courses in premature infant nursing, on stipends provided through the U. S. Children's Bureau, they assisted in conducting a two-day institute for nurses in the Billings area on "Premature Infant Nursing."

**CHILD HEALTH.** In this field, the outstanding development was the promotion of Discussion Groups for Expectant Mothers. The first of these was conducted in Pondera County; four other areas had one or more series of classes; planning for instruction for expectant mothers was initiated in four other areas. These discussion groups have resulted in improved continuity of service to families by bringing hospitals, hospital nurses and community nursing closer in their work. Development of classes for expectant mothers resulted from emphasis, in this division's in-service education program, on the importance of programs for mothers and children.

**CRIPPLED CHILDREN.** Nursing consultant services in this field has shifted in emphasis. The 16, twice-a-year crippled children clinics have changed little in the number of children examined and cared for under the program. But, as a result of better organization, these clinics now require less time of the consultant assigned to this work. This has permitted more emphasis and attention to other programs within the Child Health Services, including the Cerebral Palsy and Rheumatic Fever programs and the development of a program to meet the special needs of the handicapped child.

**DISEASE CONTROL PROGRAM.** In this area, assistance was extended by this division in the revision of communicable disease information for Montana schools. Major responsibility in this work area was in providing leadership in the organization and work of Professional Services Committees in connection with county-wide chest X-ray survey program. In addition to this responsibility, nursing consultants in this division gave direct services in the follow-up aspect of the survey program in those areas of the State without local public health nursing service. Staff services in this division's disease control work has not been continuous;



**RECORDS**—A public health nursing consultant from this division's staff aids the nursing and clerical staff at Montana Public Health District No. 2 offices, Polson, in developing meaningful, effective and convenient public health nursing records.

a vacancy in February, 1953, was not filled until April, 1954. This resulted in increased work load for the public health nursing consultants, until the vacancy was filled.

Of Montana's 56 counties, 30 are without any public health nursing service.

In accordance with good public health practice and Montana public health laws and regulations, in this biennium, the division of Public Health Nursing devoted time and personnel to: recruiting; supervision of all public health nursing; improvement and maintenance of standards by review and approval of credentials; and coordination of all public health nursing services.

#### **Staff**

As a continuous activity, recruiting in this report period was directed at filling vacancies on the state staff in addition to the always-urgent demands for local public health nurses. In addition to the usual recruiting efforts, directed at professional nursing magazines, schools of nursing, schools of public health and Montana Merit System notices, this division developed a brochure for use in recruiting public health nurses to Montana

positions. It has been used through schools of nursing, schools of public health and other health departments. As yet, it has been difficult to evaluate the effectiveness of the brochure. But it is encouraging to note that the number of public health nursing applicants in this report period was more than double the number received in the previous biennium.

Keeping public health nursing standards high assures Montana's citizens of better service. It is recognized that Montana's standards are higher than those of some of the surrounding areas.

By increasing the use of examinations and better evaluation techniques, this division is striving to maintain a high standard of public health nursing while making appointments and promotions that will be more satisfying to the nurses. To aid in the work to meet these objectives, a professional committee has been named to continue a study of the problem of evaluating applicants' educational and nursing backgrounds as related to existing job specifications. Recommendations offered by this professional committee are expected to encourage more nurses to accept public health nursing positions in the state.

The division has continued to extend assistance to local health departments in recruiting. Because local staffs are small in number, it makes State wide recruiting more effective in some ways. Through cooperative efforts, more opportunities are offered for selection and promotion of nurses.

#### **Education**

It is not enough that more Montana areas are served by public health nurses. It is also important that nurses holding public health nursing positions be qualified for their work by experience and training. With this objective in mind, the State Board of Health each year makes educational stipends available to Montana public health nurses. Fourteen nurses were granted financial assistance for graduate training in public health nursing in this report period. Only nine such grants were made in the previous biennial.

Also of importance in this division's efforts to improve public health nursing, a one-week workshop on "Basic Public Health Nursing and Administrative Relationships" was conducted in this biennium for local public health nurses with little public health training and/or experience. A similar workshop will be conducted each year in Helena.

Three nursing students took field-training, for academic credit, with the city-county, Bozeman, health department in this biennium as the result of cooperative planning by this division; Montana State College, the State Committee on Public Health Nursing Affiliation, and the city-county health department. One of these students remained in the state



**CLASS FOR MOTHERS-TO-BE**—Mrs. Emma Wright, Hill County public health nurse, demonstrates to a class of expectant mothers the proper technique for giving a baby a bath. These informal, discussion-type classes help the mother approach the birth of her child with confidence and assurance. Standing in the background are two student nurses from Sacred Heart hospital.



**PARENT-TEACHER-NURSE CONFERENCE**—Working closely with the teacher, family physician and dentist and parents, public health nurses devote much of their time to guarding the school-age child's health. A public health nurse (center) is pictured in a Missoula school with a mother and teacher. She works to aid teachers and parents recognize the essential elements in maintaining a child's health or adjusting to a child's physical deficiencies.



**PLANNING THE DAY**—A public health nurse and her supervisor review with their health officer, Dr. Mary E. Soules (center), Missoula, the city and county public health needs as a guide in planning a day's work.

to take a public health nursing position. When fully organized and accredited, this program should—by offering students an opportunity for public health nursing education in the state—make available more qualified public health nurses in Montana.

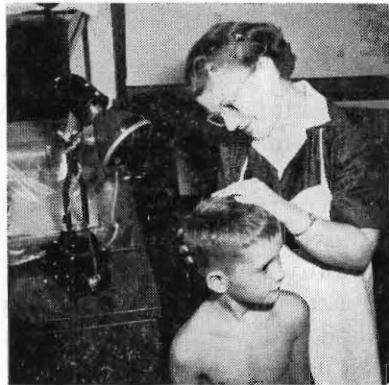
A series of regional meetings, on "Care of the Cancer Patient in the Home," will be conducted early in the next biennium for local public health nurses by this division in cooperation with the Montana Division of the American Cancer Society. Because cancer is a major health problem, it is essential the nurse be well informed and prepared to give service. Through her relationship to the family, the nurse is in a strategic position to give service in the general education of the public, case finding and care of the patient in the home.

Public health nurses enjoy an excellent opportunity, in the home and the school, to aid parents and teachers in an understanding of good mental health practices. Because of these opportunities, the State Board of Health and the Mental Health Authority are now planning regional institutes to aid local public health nurses in their mental health services to the community.

Advances made in the total care of the child with a cleft palate, emphasizes the importance of the public health nurse having a sound understanding in order to interpret to the public, parents, teachers and other health workers. It is imperative that the needs of these children be understood by those working with them. With an understanding of work of the professions involved in the care of these children, the public

health nurse can provide a more effective service. This division will take part in the development of the state-wide program for the care of these children, and will conduct conferences designed for both hospital and community nurses cooperating in the program.

In cooperation with the Montana Tuberculosis Association, this division conducted a work conference for nurses on "The Care of the Tuberculous." In this report period, a polio workshop on "Care of the Polio Patient" was conducted for nurses in cooperation with the Montana State Nurses' Association and National Foundation for Infantile Paralysis. An institute for nurses was also conducted on the state cerebral palsy program.



**SCALP EXAMINATION**—A City-County Health Dept., Great Falls, public health nurse examines a child's scalp under a Woods lamp for signs of scalp ringworm, as a part of a routine physical examination required of all children enrolling in Great Falls schools.



**CARE IN THE HOME** — A local public health nurse demonstrates and explains techniques designed to improve care of sick in the home and to help in carrying out the physician's instructions for patient care.

**TABLE I**  
**Montana's Population**  
**Federal Census 1950 and Estimated Population 1952 and 1953 by Counties**

Counties—	Federal Census 1950	Estimated Population 1952	1953
1. Beaverhead	6,671	7,051	6,931
2. Big Horn	9,824	9,714	9,417
3. Blaine	8,516	8,076	8,171
4. Broadwater	2,922	2,787	2,724
5. Carbon	10,241	10,153	9,943
6. Carter	2,798	2,825	2,643
7. Cascade	53,027	57,704	61,404
8. Chouteau	6,974	7,221	7,804
9. Custer	12,661	12,847	12,277
10. Daniels	3,946	4,128	4,327
11. Dawson	9,092	10,285	10,538
12. Deer Lodge	16,553	17,648	19,154
13. Fallon	3,660	3,732	3,901
14. Fergus	14,015	13,927	14,058
15. Flathead	31,495	32,148	32,696
16. Gallatin	21,902	22,567	23,180
17. Garfield	2,172	2,196	2,214
18. Glacier	9,645	10,328	10,808
19. Golden Valley	1,337	1,310	1,395
20. Granite	2,773	2,813	2,978
21. Hill	14,285	15,386	16,123
22. Jefferson	4,014	4,244	4,240
23. Judith Basin	3,200	3,128	3,133
24. Lake	13,835	12,837	12,539
25. Lewis & Clark	24,540	27,212	26,812
26. Liberty	2,180	2,277	2,977
27. Lincoln	8,639	10,263	11,094
28. McCone	3,258	3,580	3,306
29. Madison	5,998	6,261	6,203
30. Meagher	2,079	2,193	2,325
31. Mineral	2,081	2,424	2,688
32. Missoula	35,493	38,857	39,660
33. Musselshell	5,408	5,059	5,152
34. Park	11,999	12,241	12,942
35. Petroleum	1,026	862	923
36. Phillips	6,334	6,573	5,988
37. Pondera	6,392	6,836	7,178
38. Powder River	2,693	2,726	2,739
39. Powell	6,301	7,142	7,371
40. Prairie	2,377	2,657	2,494
41. Ravalli	13,101	12,209	12,037
42. Richland	10,366	10,864	10,986
43. Roosevelt	9,580	10,698	12,042
44. Rosebud	6,570	7,072	7,059
45. Sanders	6,983	7,301	7,311
46. Sheridan	6,674	6,988	7,301
47. Silver Bow	48,422	53,190	55,737
48. Stillwater	5,416	5,480	5,896
49. Sweet Grass	3,621	3,722	3,659
50. Teton	7,232	7,403	7,531
51. Toole	6,867	7,667	7,937
52. Treasure	1,402	1,374	1,304
53. Valley	11,353	11,054	11,519
54. Wheatland	3,187	3,369	3,204
55. Wibaux	1,907	1,722	1,919
56. Yellowstone	55,875	61,421	64,753
57. Yellowstone Park	58	-----	-----
<b>TOTAL</b>	<b>591,024</b>	<b>620,000</b>	<b>640,000</b>

TABLE II  
Resident Births, Deaths, Infant Deaths, Neo Natal Deaths, Stillbirths, Marriages, and Divorces  
With Their Rates by Counties in 1952

(Birth, death, marriage and divorce rates per 1,000 population; infant and stillbirth rates per 1,000 live births.)

Counties—	Births	Rate	Deaths	Rate	Infant Deaths	Rate	Neo Natal Deaths	Rate	Fetal Deaths	Rate	Mar- riages	Rate	Di- vorces	Rate
Beaverhead -----	138	19.6	76	10.8	3	21.7	2	14.5	5	36.2	72	10.2	19	2.7
Big Horn -----	333	34.3	99	10.2	13	39.0	12	36.0	3	9.0	94	9.7	24	2.5
Blaine -----	228	28.2	96	11.9	8	35.1	3	13.2	8	35.1	64	7.9	8	1.0
Broadwater -----	65	23.3	28	10.0	2	30.8	2	30.8	1	15.4	18	6.4	54	19.4
Carbon -----	222	21.9	108	10.6	4	18.0	2	9.0	3	13.5	104	10.2	25	2.5
Carter -----	74	26.2	28	9.9	1	13.5	1	13.5	1	13.5	10	3.5	4	1.4
Cascade -----	1,707	29.6	579	10.0	43	25.2	41	24.0	31	18.2	751	13.0	200	3.5
Chouteau -----	183	25.3	54	7.5	5	27.0	5	27.0	3	16.4	103	14.3	8	1.1
Custer -----	364	28.3	133	10.4	11	30.2	8	22.0	4	11.0	268	20.9	61	4.7
Daniels -----	114	27.6	34	8.2	0	00.0	0	00.0	2	17.5	28	6.8	3	0.7
Dawson -----	302	29.4	64	5.2	7	23.2	3	9.9	6	19.9	90	8.8	22	2.1
Deer Lodge -----	432	24.5	172	9.7	18	41.7	16	37.0	4	9.3	110	6.2	47	2.7
Fallon -----	96	25.7	26	7.0	3	31.3	2	20.8	1	10.4	36	9.6	7	1.9
Fergus -----	379	27.2	157	11.3	6	15.8	4	10.6	4	10.6	112	8.0	46	3.3
Flathead -----	847	26.3	321	10.0	28	33.1	20	23.6	12	14.2	222	6.9	85	2.6
Gallatin -----	546	24.2	174	7.7	12	22.0	10	18.3	6	11.0	175	7.8	59	2.6
Garfield -----	65	29.6	22	10.0	0	00.0	0	00.0	0	00.0	6	2.7	3	1.4
Glacier -----	332	32.1	88	8.5	12	36.1	6	18.1	6	18.1	49	4.7	17	1.6
Golden Valley -----	23	17.6	14	10.7	0	00.0	0	00.0	0	00.0	8	6.1	1	0.8
Granite -----	81	28.8	30	10.7	3	37.0	2	24.7	1	12.3	23	8.2	1	0.4
Hill -----	486	31.6	112	7.2	10	20.6	8	16.5	8	16.5	180	11.7	50	3.2
Jefferson -----	77	18.1	35	8.2	1	13.0	0	00.0	2	26.0	60	14.1	2	0.5
Judith Basin -----	74	23.7	32	10.2	1	13.5	0	00.0	0	00.0	13	4.2	17	5.4
Lake -----	322	25.1	127	9.9	12	37.3	8	24.8	8	24.1	90	7.0	44	3.4
Lewis & Clark -----	694	25.5	294	10.8	24	34.6	22	31.7	7	10.1	284	10.4	207	7.6
Liberty -----	59	25.9	18	7.9	0	00.0	0	00.0	1	16.9	12	5.3	0	00.0
Lincoln -----	291	28.4	72	7.0	4	13.7	3	10.3	2	6.9	54	5.3	14	1.4
McCone -----	99	27.7	28	7.8	2	20.2	2	20.2	3	30.3	13	3.6	1	0.3
Madison -----	111	17.7	61	9.7	3	27.0	3	27.0	4	36.0	16	2.6	11	1.8
Meagher -----	62	28.3	30	13.7	1	16.1	1	16.1	1	16.1	12	5.5	2	0.9
Mineral -----	64	26.4	17	7.0	2	31.3	1	15.6	3	46.9	209	86.0	8	3.3
Missoula -----	930	23.9	352	9.1	27	29.0	19	20.4	9	9.7	487	12.5	121	3.1

TABLE II (Continued)

Counties—	Births	Rate	Deaths	Rate	Infant Deaths	Rate	Neo-Natal Deaths	Rate	Fetal Deaths	Rate	Marriages	Rate	Divorces	Rate
Musselshell	122	24.1	65	12.8	0	00.0	0	00.0	0	00.0	37	7.3	17	3.4
Park	256	20.9	137	11.2	8	31.3	7	27.3	6	23.4	135	11.0	17	1.4
Petroleum	18	20.9	8	9.3	0	00.0	0	00.0	1	55.6	1	1.2	1	1.2
Phillips	173	26.3	80	12.2	5	28.9	3	17.3	2	11.6	43	6.5	17	2.6
Pondera	237	34.7	63	9.2	9	38.0	6	25.3	5	21.1	64	9.4	42	6.1
Powder River	57	20.9	17	6.2	3	52.6	3	52.6	2	35.1	13	4.7	2	0.7
Powell	147	20.6	68	9.5	3	20.4	3	20.4	0	00.0	52	7.3	12	1.7
Prairie	86	32.4	24	9.0	1	11.6	0	00.0	0	00.0	13	4.9	2	0.8
Ravalli	248	20.3	152	12.4	7	28.2	5	20.2	6	24.2	100	8.2	24	2.0
Richland	340	31.3	88	8.1	17	50.0	12	35.3	3	8.8	148	13.6	19	1.7
Roosevelt	421	39.4	96	9.0	16	38.0	11	26.1	7	16.6	91	8.5	52	4.9
Rosebud	184	26.0	70	9.9	15	81.5	4	21.7	2	10.9	42	5.9	19	2.7
Sanders	172	23.6	78	10.7	4	23.3	4	23.3	0	00.0	89	12.2	22	3.0
Sheridan	207	29.6	57	8.2	2	9.7	2	9.7	8	38.6	75	10.7	13	1.9
Silver Bow	1,286	24.2	690	13.0	38	29.5	27	21.0	27	21.0	577	10.8	249	4.7
Stillwater	114	20.8	44	8.0	3	26.3	2	17.5	1	8.8	57	10.4	16	2.9
Sweet Grass	72	19.3	31	8.3	0	00.0	0	00.0	1	13.9	27	7.3	2	0.5
Teton	184	24.9	55	7.4	1	5.4	1	5.4	3	16.3	86	11.6	8	1.1
Toole	207	27.0	52	6.9	5	24.2	3	14.5	3	14.5	60	7.8	18	2.3
Treasure	31	22.6	15	10.9	0	00.0	0	00.0	1	32.3	6	4.4	1	0.7
Valley	339	30.7	96	8.7	5	14.7	4	11.8	3	8.8	99	9.0	7	0.6
Wheatland	88	26.1	43	12.8	8	90.9	6	68.2	3	34.1	18	5.3	6	1.8
Wibaux	60	34.8	18	10.5	2	33.3	1	16.7	1	16.7	17	9.9	1	0.6
Yellowstone	1,630	26.5	446	7.3	30	18.4	27	16.6	19	11.7	787	12.8	251	4.1
TOTALS	16,479	26.4	5,974	9.6	448	27.2	337	20.5	253	15.4	6,410	10.3	1,989	3.2

TABLE III  
**Resident Births, Deaths, Infant Deaths, Neo Natal Deaths, Stillbirths, Marriages, and Divorces  
 With Their Rates by Counties in 1953**

(Birth, death, marriage and divorce rates per 1,000 population; infant and stillbirth rates per 1,000 live births.)

Counties—	Births	Rate	Deaths	Rate	Infant Deaths	Rate	Neo Natal Deaths	Rate	Fetal Deaths	Rate	Mar- riages	Rate	Di- vorces	Rate
Beaverhead -----	153	22.1	101	14.6	7	45.8	7	45.8	2	13.1	65	9.4	22	3.2
Big Horn -----	299	31.8	91	9.7	18	60.2	7	23.4	4	13.4	90	9.6	29	3.1
Blaine -----	241	29.5	78	9.5	3	12.4	2	8.3	2	8.3	59	7.2	9	1.1
Broadwater -----	65	23.9	32	11.7	1	15.4	1	15.4	1	15.4	43	15.8	50	18.4
Carbon -----	161	16.2	98	9.9	2	12.4	1	6.2	1	6.2	111	11.2	14	1.4
Carter -----	84	31.8	34	12.9	2	23.8	2	23.8	0	0.0	15	5.7	4	1.5
Cascade -----	1,734	28.2	554	9.0	46	26.5	29	16.7	33	19.0	705	11.5	178	2.9
Chouteau -----	180	23.1	80	10.3	7	38.9	6	33.3	5	27.8	90	11.5	9	1.2
Custer -----	367	29.9	124	10.1	10	27.2	9	24.5	4	10.9	255	20.8	59	4.8
Daniels -----	116	26.8	22	5.1	3	25.9	2	17.2	2	17.2	34	7.9	3	0.7
Dawson -----	356	33.8	73	6.9	8	22.5	7	19.7	2	5.6	121	11.5	24	2.3
Deer Lodge -----	420	21.9	194	10.1	16	38.1	13	31.0	12	28.6	121	6.3	56	2.9
Fallon -----	107	27.4	28	7.2	2	18.7	0	0.0	2	18.7	29	7.4	7	1.8
Fergus -----	381	27.1	158	11.2	14	36.7	11	28.9	5	13.1	126	9.0	30	2.1
Flathead -----	788	24.1	305	9.3	21	26.6	18	22.8	13	16.5	228	7.0	65	2.0
Gallatin -----	516	22.3	167	7.2	12	23.3	12	23.3	8	15.5	204	8.8	58	2.5
Garfield -----	48	21.7	21	9.5	3	62.5	2	41.7	0	0.0	3	1.4	1	0.5
Glacier -----	317	29.3	110	10.2	21	66.2	10	31.5	7	22.1	66	6.1	33	3.1
Golden Valley -----	29	20.8	10	7.2	1	34.5	0	0.0	3	103.4	6	4.3	1	0.7
Granite -----	57	19.1	37	12.4	2	35.1	2	35.1	0	0.0	19	6.4	2	0.7
Hill -----	483	30.0	144	8.9	15	31.1	11	22.8	8	16.6	183	11.4	62	3.8
Jefferson -----	90	21.2	35	8.3	1	11.1	1	11.1	1	11.1	59	13.9	3	0.7
Judith Basin -----	87	27.8	35	11.2	1	11.5	0	0.0	0	0.0	12	3.8	8	2.6
Lake -----	322	25.7	139	11.1	8	24.8	4	12.4	3	9.3	105	8.4	45	3.6
Lewis & Clark -----	663	24.7	299	11.2	18	27.1	12	18.1	7	10.6	315	11.7	234	8.7
Liberty -----	76	25.5	10	3.4	2	26.3	2	26.3	0	0.0	11	3.7	2	0.7
Lincoln -----	274	24.7	81	7.3	9	32.8	6	21.9	1	3.6	53	4.8	15	1.3
McCone -----	103	31.2	28	8.5	2	19.4	0	0.0	2	19.4	13	3.9	4	1.2
Madison -----	114	18.4	58	9.4	4	35.1	3	26.3	0	0.0	32	5.2	10	1.6
Meagher -----	40	17.2	29	12.5	0	0.0	0	0.0	1	25.0	7	3.0	2	0.9
Mineral -----	73	27.2	24	8.9	4	54.8	1	13.7	1	13.7	249	92.6	4	1.5
Missoula -----	932	23.5	330	8.3	19	20.4	14	15.0	13	13.9	456	11.5	133	3.4

TABLE III (Continued)

Counties—	Births	Rate	Deaths	Rate	Infant Deaths	Rate	Neo Natal Deaths	Rate	Fetal Deaths	Rate	Marriages	Rate	Divorces	Rate
Musselshell	93	18.1	59	11.5	4	43.1	3	32.3	0	00.0	47	9.1	15	2.9
Park	297	22.9	135	10.4	10	33.7	8	26.9	3	10.1	131	10.1	10	0.8
Petroleum	18	19.5	9	9.8	1	55.6	1	55.6	0	00.0	3	3.3	0	00.0
Phillips	175	29.2	55	9.2	6	34.3	5	28.6	1	5.7	48	8.0	12	2.0
Pondera	257	35.8	64	8.9	9	35.0	6	23.3	4	15.6	70	9.8	52	7.2
Powder River	67	24.5	13	4.8	0	00.0	0	00.0	1	14.9	15	5.5	0	00.0
Powell	157	21.3	83	11.3	4	25.5	3	19.1	3	19.1	44	6.0	16	2.2
Prairie	67	26.9	23	9.2	3	44.8	2	29.9	0	00.0	26	10.4	2	0.8
Ravalli	249	20.7	109	9.1	4	16.1	3	12.0	3	12.0	83	6.9	13	1.1
Richland	283	25.8	83	7.6	6	21.2	5	17.7	3	10.6	195	17.7	13	1.2
Roosevelt	445	37.0	109	9.0	18	40.4	13	29.2	9	20.2	118	9.8	60	5.0
Rosebud	175	24.8	58	8.2	7	40.0	3	17.1	3	17.1	35	5.0	13	1.8
Sanders	184	25.2	91	12.4	9	48.9	6	32.6	4	21.7	84	11.5	21	2.9
Sheridan	223	30.5	68	9.3	6	26.9	6	26.9	2	9.0	78	10.7	14	1.9
Silver Bow	1,283	23.0	718	12.9	37	28.8	28	21.8	28	21.8	550	9.9	222	4.0
Stillwater	125	21.2	63	10.7	2	16.0	0	00.0	0	00.0	80	13.6	13	2.2
Sweet Grass	85	23.2	39	10.7	2	23.5	2	23.5	0	00.0	27	7.4	7	1.9
Teton	175	23.2	47	6.2	2	11.4	2	11.4	3	17.1	72	9.6	7	0.9
Toole	215	27.1	64	8.1	4	18.6	3	14.0	0	00.0	68	8.6	29	3.7
Treasure	37	28.4	9	6.9	0	00.0	0	00.0	0	00.0	5	3.8	3	2.3
Valley	350	30.4	116	10.1	13	37.1	6	17.4	4	11.4	87	7.6	13	1.1
Wheatland	67	20.9	33	10.3	1	14.9	1	14.9	0	00.0	15	4.7	10	3.1
Wibaux	52	27.1	19	9.9	1	19.2	1	19.2	0	00.0	27	14.1	2	1.0
Yellowstone	1,841	28.4	529	8.2	49	26.6	36	19.6	18	9.7	804	12.4	263	4.1
TOTALS	16,596	25.9	6,125	9.6	480	28.9	338	20.4	232	14.0	6,597	10.3	1,986	3.1

TABLE IV  
**MONTANA — 1952 — CAUSES OF DEATH BY AGE GROUPS**  
 Abridged 6th Revision International Causes of Death  
 AGE GROUPS

CAUSES AND CODE NUMBERS—	1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75+	Totals
Tuberculosis, respiratory system, 001-008	1	—	—	—	1	2	4	4	3	2	5	10	7	9	7	4	4	63
Tuberculosis, other forms, 010-019	2	2	—	—	—	1	1	1	3	1	1	2	1	—	1	—	—	16
Syphilis, and its sequelae, 020-029	1	—	—	—	—	—	—	—	—	—	—	3	1	3	3	3	7	21
Gonococcal infection and other venereal diseases, 030-039	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
Infectious diseases commonly arising in intestinal tract, 040-049	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
Other bacterial diseases, 050-064	3	3	1	1	—	—	1	—	1	—	—	—	2	—	—	—	—	12
Diseases attributable to viruses, 080-096	2	4	1	—	1	1	4	1	—	—	1	—	1	—	1	1	1	19
Typhus and other rickettsial diseases, 100-108	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
<b>Malignant Neoplasms</b>																		
Buccal cavity and pharynx, 140-148	—	—	—	—	—	—	1	—	—	5	8	12	13	24	50	55	56	87
Digestive organs and peritoneum, 150-159	—	—	—	—	—	—	1	—	—	2	4	7	15	21	26	12	15	312
Respiratory system, 160-165	—	—	—	—	—	—	1	—	—	—	—	7	15	26	12	15	103	
Breast and genito-urinary organs, 170-181	—	1	1	—	—	—	—	1	3	6	12	7	26	40	32	32	55	216
Other and unspecified sites, 190-199	1	1	—	4	1	—	—	1	4	1	6	6	9	7	12	8	16	77
Lymphatic and haematopoietic tissues, 200-205	1	5	—	1	1	1	1	4	4	—	6	5	6	8	15	9	9	76
Benign neoplasms, 210-929	—	—	—	—	—	—	1	—	—	1	1	—	1	—	—	—	—	3
Unspecified nature, 230-239	—	—	—	—	—	1	—	1	—	—	1	1	—	—	—	—	—	4
Allergic disorders, 240-245	1	—	—	—	—	—	—	—	1	—	1	1	1	3	2	7	3	31
Diseases, thyroid gland, 250-254	—	—	—	—	—	—	—	—	—	—	2	—	—	3	—	1	6	
Diabetes, mellitus, 260	—	—	—	1	—	1	2	1	—	2	2	1	5	13	13	16	26	83
Other endocrine glands, 270-277	2	1	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	5
Avitaminoses and other metabolic diseases, 280-289	—	1	—	—	—	—	—	—	1	—	—	—	1	1	1	—	2	7
Diseases of the blood and blood-forming organs, 290-299	1	1	—	1	2	—	—	—	—	1	1	1	—	3	1	2	4	18
Psychoses, 300-309	—	—	—	—	—	—	—	—	1	—	2	—	1	—	—	1	4	9
Psychoneurotic disorders, 310-318	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	
Disorders of character, behavior and intelligence, 320-326	3	—	—	—	—	—	—	2	1	4	3	2	—	2	—	—	—	17

TABLE IV (Continued)

TABLE IV (Continued)

CAUSES AND CODE NUMBERS—	1 4	1	5 9	10 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 74	75+ Totals
		to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	
Complications of pregnancy, 640-649.....	—	—	—	—	—	1	1	1	1	—	—	—	—	—	—	—	4
Abortion, 650-652.....	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Delivery with specified complication, 670-678.....	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	2
Complications of the puerperium, 680-689.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Infections—skin and subcutaneous tissue, 690-698.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Other diseases—skin and subcutaneous tissue, 700-716.....	—	—	—	—	—	—	—	1	—	—	1	—	1	1	—	2	6
Arthritis and rheumatism except rheumatic fever, 720-727.....	—	—	—	—	—	—	—	—	—	—	1	—	2	—	—	2	2
Osteomyelitis and other diseases of bone and joint, 730-738.....	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Other diseases of musculoskeletal system, 740-749.....	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
Congenital malformations, 750-759.....	63	7	1	1	—	—	2	—	—	—	—	—	—	—	—	—	74
Birth injuries, asphyxia and infections— newborn, 760-769.....	126	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	126
Other diseases peculiar to early infancy, 770-776.....	148	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	148
Symptoms referable to systems or organs, 780-789.....	2	1	—	—	—	—	—	2	—	2	—	2	4	7	7	11	20
Senility and ill-defined diseases, 790-795.....	7	1	1	—	—	—	—	2	2	3	5	9	7	9	11	15	82
CAUSES—TOTALS.....	436	65	15	18	19	14	35	45	83	124	166	232	373	542	701	708	1,733
Accidents.....	—	1	1	—	2	1	2	1	1	3	3	3	2	2	—	—	19
Railway, 800-802.....	1	6	4	4	27	38	23	20	19	13	13	8	14	15	10	5	4
Motor vehicle traffic, 810-825.....	—	5	1	—	1	—	1	—	1	1	—	—	—	—	1	—	11
Motor vehicle nontraffic, 830-835.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other road vehicle, 840-845.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Water transport, 850-858.....	—	—	1	1	—	—	2	1	—	—	2	—	1	—	2	—	1
Aircraft, 860-866.....	—	—	—	—	3	3	3	1	1	1	—	—	—	—	—	—	11
Poisoning by solid and liquid substance, 870-888.....	—	2	—	—	1	—	1	—	1	—	—	—	1	1	1	1	6
Poisoning by gases and vapours, 890-895.....	—	—	—	1	2	1	—	—	1	1	—	1	1	2	1	2	13

TABLE IV (Continued)

CAUSES AND CODE NUMBERS—	1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75+ Totals	
Falls, 900-904						1	2		2	3	3	3	5	4	8	7	37	75
Others, 910-936	10	26	9	11	9	11	9	21	8	19	13	13	8	8	7	2	6	190
ACCIDENTS—TOTALS	12	40	16	16	40	56	44	46	31	40	36	27	29	30	34	15	52	564
Suicide and self-inflicted injury, 970-979						5	6	6	9	10	5	7	9	9	9	4	5	84
Homicide and injury purposely inflicted by other persons (not in war), 980-985		1				2	2	4		3	1		1	2		1		17
SUICIDE AND HOMICIDE—TOTALS		1				7	8	10	9	13	6	7	10	11	9	5	5	101
GRAND TOTALS	448	106	31	34	59	77	87	101	123	177	208	266	412	583	744	728	1,790	5,974

TABLE V  
MONTANA — 1953 — CAUSES OF DEATH BY AGE GROUPS  
Abridged 6th Revision International Causes of Death

CAUSES AND CODE NUMBERS—	AGE GROUPS																			Unk Totals
	1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75+	Unk Totals		
Tuberculosis of respiratory system, 001-008	—	3	—	—	—	—	1	4	4	4	3	3	6	8	7	10	7	—	60	
Tuberculosis, other forms, 010-019	1	4	—	1	—	1	—	—	1	2	—	—	1	2	1	2	1	—	17	
Syphilis and its sequelae, 020-029	2	—	—	—	—	—	—	—	1	1	1	1	2	1	1	5	4	—	19	
Infectious diseases commonly arising in intestinal tract, 040-049	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	4	
Other bacterial diseases, 050-064	4	4	2	2	1	—	3	6	—	1	—	1	—	1	—	—	2	—	18	
Diseases attributable to viruses, 080-096	3	2	6	3	1	2	3	6	—	1	—	—	—	—	1	—	3	—	31	
Other infective and parasitic diseases, 120-138	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	
<b>Malignant Neoplasms</b>																				
Buccal cavity and pharynx, 140-148	—	—	—	—	—	—	1	1	3	5	12	12	28	45	58	47	90	—	302	
Digestive organs and peritoneum, 150-159	—	—	—	—	—	—	—	1	4	6	9	12	23	24	19	13	—	111		
Respiratory system, 160-165	—	—	—	—	—	—	—	—	7	14	15	21	31	38	23	63	—	231		
Breast and genito-urinary organs, 170-181	—	1	—	—	1	2	6	9	7	14	15	21	31	38	23	63	—	12		
Other and unspecified sites, 190-199	—	2	—	2	1	1	1	3	3	2	5	6	10	9	5	12	—	63		
Lymphatic and haematopoietic tissues, 200-205	—	5	1	—	—	4	3	3	4	2	5	8	6	13	14	6	15	1	90	
Benign neoplasms, 210-229	—	1	—	—	—	—	1	—	—	1	—	—	—	1	—	—	1	—	5	
Unspecified nature, 230-239	—	—	1	1	—	—	—	—	1	—	—	1	—	1	—	—	1	—	6	
Allergic disorders, 240-245	—	1	—	—	—	—	—	1	—	3	1	—	1	4	7	4	5	—	27	
Diseases, thyroid gland, 250-254	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	2	—	—	5	
Diabetes mellitus, 260	—	—	1	—	1	1	—	1	3	—	—	5	3	7	15	6	30	—	73	
Diseases, other endocrine glands, 270-277	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2	
Avitaminoses and other metabolic diseases, 280-289	—	1	—	—	—	—	1	—	—	1	—	—	—	—	1	—	1	—	5	
Diseases, blood and blood-forming organs, 290-299	2	—	4	—	—	—	—	1	1	—	1	—	2	—	1	2	6	—	20	
Psychosis, 300-309	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	1	1	4	
Disorders of character, behaviour and intelligence, 320-326	1	—	—	—	—	—	—	1	1	4	3	3	1	2	—	—	—	—	16	

TABLE V (Continued)

CAUSES AND CODE NUMBERS—	1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75+	Unk Totals		
Vascular lesions affecting central nervous system, 330-334	2	...	2	...	...	1	1	2	7	7	8	17	31	54	103	105	308	1	649	
Inflammatory diseases—central nervous system, 340-435	4	6	1	2	...	...	...	...	2	2	2	1	...	...	1	1	2	...	24	
Other diseases of central nervous system, 350-357	...	...	1	...	2	2	3	3	3	2	1	...	3	1	5	5	4	...	35	
Diseases of nerves and peripheral ganglia, 360-369	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	
Diseases of ear and mastoid process, 390-398	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	
Rheumatic fever, 400-402	...	...	...	3	2	...	1	1	1	1	6	7	7	11	10	7	8	12	...	10
Chronic rheumatic heart disease, 410-416	...	...	...	...	2	1	5	6	2	6	7	11	10	7	7	8	12	...	77	
Arteriosclerotic and degenerative heart disease, 420-422	1	...	...	2	...	2	9	11	24	55	98	108	220	262	296	608	3	1,699		
Other diseases of heart, 430-434	2	...	1	...	1	1	3	4	4	8	12	18	19	29	32	66	2	202		
Hypertensive disease, 440-447	...	...	...	...	2	1	...	1	2	1	7	6	20	33	39	96	1	208		
Diseases of arteries, 450-456	...	...	...	2	1	...	1	...	1	1	3	...	3	9	24	112	...	157		
Diseases of veins and other diseases of circulatory system, 460-468	1	...	...	...	...	...	...	1	...	1	1	1	2	5	6	2	11	...	31	
Acute upper respiratory infections, 470-475	2	2	...	1	1	1	1	...	...	1	1	1	2	2	7	7	24	...	4	
Influenza, 480-483	9	1	1	1	1	1	1	...	...	1	1	1	2	2	7	7	24	...	59	
Pneumonia, 490-493	41	2	3	...	1	1	2	1	2	8	4	5	5	7	10	16	71	1	180	
Bronchitis, 500-502	7	3	...	1	...	...	...	...	...	...	...	...	2	...	1	1	...	15		
Other diseases of respiratory system, 510-527	...	1	...	...	...	...	...	...	2	1	3	3	3	7	12	12	16	...	60	
Diseases of buccal cavity and esophagus, 530-539	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	
Diseases of stomach and duodenum, 540-545	2	...	...	...	...	...	...	...	1	2	1	2	5	5	6	8	3	11	...	46
Appendicitis, 550-553	1	2	...	...	2	...	...	...	...	...	...	...	2	6	...	1	...	14		
Hernia of abdominal cavity, 560-561	3	...	...	...	...	...	...	...	...	...	...	...	3	1	...	6	...	13		
Other diseases—intestines and peritoneum, 570-578	18	1	...	1	...	1	...	...	1	1	4	6	2	7	12	6	15	...	75	
Diseases of liver, gallbladder and pancreas, 580-587	1	...	1	2	...	...	...	2	6	5	1	8	7	9	14	8	18	...	82	

TABLE V (Continued)

CAUSES AND CODE NUMBERS—	1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75+	Unk	Totals
Nephritis and nephrosis, 590-594.....	—	1	—	—	2	—	3	2	4	5	2	4	5	7	14	7	21	—	77
Other diseases of urinary system, 600-609.....	—	—	—	—	—	—	1	—	—	1	1	1	1	1	3	1	5	—	15
Diseases of male genital organs, 610-617.....	1	—	—	—	—	—	—	—	—	—	—	—	2	4	1	13	—	22	
Diseases of uterus and other female genital organs, 630-637.....	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
Delivery with specified complication, 670-678.....	—	—	—	—	—	—	—	1	1	1	—	—	—	—	—	—	—	—	3
Other diseases of skin and subcutaneous tissue, 700-716.....	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	2
Arthritis and rheumatism, except rheumatic fever, 720-727.....	—	1	—	—	—	—	—	—	—	—	—	—	1	—	2	—	1	2	7
Osteomyelitis and other diseases of bone and joint, 730-738.....	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
Other diseases of musculoskeletal system, 740-749.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Congenital malformations, 750-759.....	59	7	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	69
Birth injuries, asphyxia and infections of newborn, 760-769.....	150	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	150
Other diseases peculiar to early infancy, 770-779.....	129	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	129
Symptoms referable to systems or organs, 780-789.....	2	—	—	—	—	—	—	—	2	4	3	4	5	7	11	18	29	—	85
Senility and ill-defined diseases, 790-795.....	9	3	—	—	—	—	—	1	3	4	2	7	6	15	16	67	—	133	
CAUSES—TOTALS.....	462	55	25	20	19	22	29	58	89	116	159	250	317	558	747	746	1,780	10	5,462
<b>Accidents</b>																			
Railway, 800-802.....	—	—	—	—	—	—	1	1	2	1	3	1	3	1	2	1	2	—	18
Motor vehicle traffic, 810-825.....	2	11	6	4	23	29	25	12	19	12	13	10	11	13	13	9	7	—	219
Motor vehicle nontraffic, 830-835.....	—	3	—	—	1	—	—	—	—	1	2	—	—	—	—	—	2	—	9
Water transport, 850-858.....	—	—	2	2	1	—	—	—	1	2	2	1	1	—	2	—	—	—	14
Aircraft, 860-866.....	—	1	—	—	—	1	1	2	—	—	1	—	—	—	—	—	—	2	8
Poisoning by solid and liquid substances, 870-888.....	—	—	—	1	1	1	1	—	—	1	—	—	—	—	—	—	2	—	1
Poisoning by gases and vapours, 890-895.....	—	—	—	1	1	1	1	—	—	—	2	1	—	2	2	—	2	—	13

TABLE V (Continued)

CAUSES AND CODE NUMBERS—	1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75+	Unk	Totals	
Falls, 900-904	1	3	—	—	1	—	—	—	—	4	3	3	2	5	3	10	36	—	71	
Other accidents, 910-936	15	26	12	12	17	4	12	9	15	9	6	9	2	12	4	6	10	—	180	
Therapeutic misadventure and late complications of therap. procedures, 950-959	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	
ACCIDENTS—TOTALS	18	44	21	19	44	36	39	25	37	30	28	30	18	34	25	27	57	2	534	
Suicide and self-inflicted injury, 970-979	—	—	—	—	—	3	4	10	5	7	9	15	8	8	8	7	8	14	—	106
Homicide and injury purposely inflicted by other persons (not in war), 980-985	—	—	—	—	—	1	3	3	4	1	2	—	3	3	1	1	1	—	23	
SUICIDE & HOMICIDE—TOTALS	—	—	—	—	—	3	5	13	8	11	10	17	8	11	11	8	9	15	—	129
GRAND TOTALS	480	99	46	39	66	63	81	91	137	156	204	288	346	603	780	782	1,852	12	6,125	

**TABLE VI**  
**RESIDENT DEATHS BY CAUSE AND RATE 1952-1953**

International Classification—Sixth Revision Abbreviated

Code No.	Cause	1952		1953	
		Number	Rate	Number	Rate
<b>I. INFECTIOUS DISEASES</b>					
001-138	Total	134	21.6	150	23.4
001-019	Tuberculosis Total	79	12.7	77	12.0
001-008	T. B. Respiratory	63	10.2	60	9.4
010	T. B. Meningitis	7	1.1	8	1.3
011-019	T. B. Other Forms	9	1.4	9	1.4
020-029	Syphilis	21	3.4	19	3.0
030-035	Gonococcus Infection	1	0.2	0	0.0
040-042	Typhoid	1	0.2	0	0.0
045-048	Dysentery	0	0.0	4	0.6
050	Scarlet Fever	0	0.0	1	0.2
051	Strep. Sore Throat	2	0.3	2	0.3
053	Septicemia	3	0.5	4	0.6
055	Diphtheria	1	0.2	3	0.5
056	Whooping Cough	1	0.2	4	0.6
057	Meningococcus Infection	4	0.6	2	0.3
061	Tetanus	1	0.2	1	0.2
080-081	Poliomyelitis	9	1.5	14	2.2
082	Encephalitis Infection	2	0.3	3	0.5
085	Measles	4	0.6	4	0.6
086-134	Other Infections	5	0.8	12	1.5
<b>II. NEOPLASMS</b>					
140-239	Total	805	129.8	820	128.1
140-199	Malignant	722	116.4	768	120.0
140-148	Buccal Cavity	14	2.3	12	1.9
150	Esophagus	16	2.6	13	2.0
151	Stomach	90	14.5	89	13.9
152-153	Intestine	89	14.4	85	13.3
154	Rectum	30	4.8	27	4.2
160-165	Respiratory	103	16.6	111	17.3
170	Breast	47	7.6	58	9.1
171-174	Uterus	38	6.1	62	9.7
177	Prostate	54	8.7	51	8.0
190-191	Skin	10	1.6	10	1.6
196-197	Bone and Connective	10	1.6	4	0.6
155-199	Other Malignant	221	35.6	197	30.8
204	Luekemia	46	7.4	49	7.7
200-203	Lymphatic	30	4.6	41	6.4
205					
210-239	Benign Neoplasm	7	1.1	11	1.7
<b>III. ALLERGY, ENDOCRINE AND METABOLIC</b>					
240-289	Total	132	21.3	112	17.5
240-245	Allergic	31	5.0	27	4.2
250-252	Goitre and Thyroid	6	1.0	5	0.8
260	Diabetes Mellitus	83	13.4	73	11.4
270-277	Other Endocrine Glands	5	0.8	2	0.3
280-289	Other Metabolic	7	1.1	5	0.8
<b>IV. BLOOD AND BLOOD FORMING ORGANS</b>					
290-299	Total	18	2.9	20	3.1
290-293	Anemias	11	1.8	16	2.5
296-299	Other Blood Forming	7	1.1	4	0.6
<b>V. MENTAL DISORDERS</b>					
300-326	Total	27	4.4	20	3.1

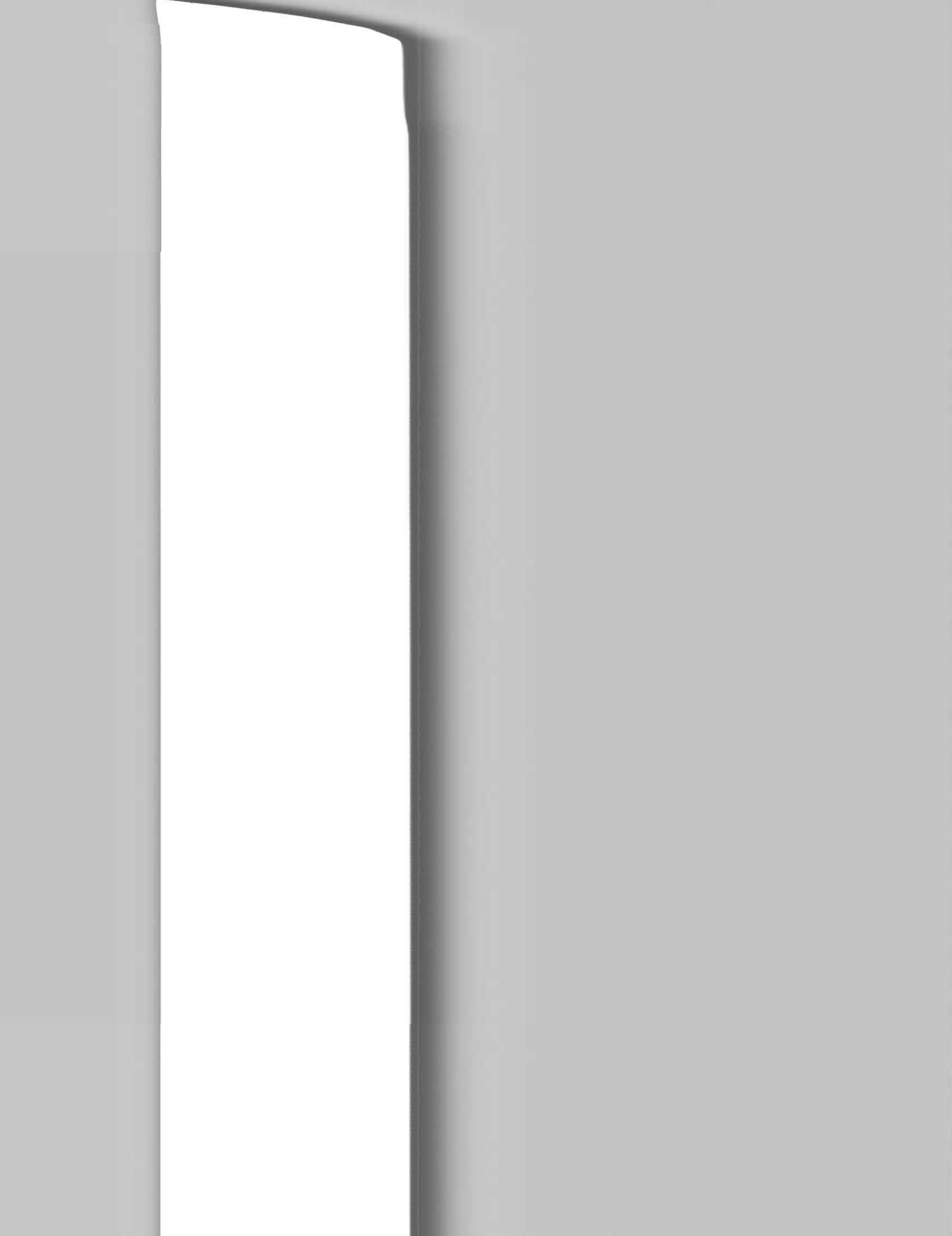
TABLE VI (Continued)

Code No.	Cause	Number	1952		1953	
			Rate		Number	Rate
300-309	Psychosis	9	1.5		4	0.6
310-326	Psychoneurosis	18	2.9		16	2.5
<b>VI. NERVOUS</b>						
330-398	Total	720	116.1		712	111.3
330-334	Vascular Lesions	651	105.0		649	101.4
340	Meningitis Simple	11	1.8		13	2.0
345	Multiple Sclerosis	9	1.5		3	0.5
353	Epilepsy	12	1.9		16	2.5
391-398	Diseases of Ear	1	0.2		3	0.5
350-390	Other Nervous	36	5.8		28	4.4
<b>VII. CIRCULATORY</b>						
400-468	Total	2,225	358.9		2,384	372.5
400-443	Total Heart	2,032	327.7		2,164	338.1
400-402	Rheumatic Fever	10	1.6		10	1.6
410-416	Rheumatic Heart	72	11.6		77	12.0
420-422	Degenerative Heart	1,545	249.2		1,699	265.5
430-434	Other Heart	185	29.8		202	31.6
440-443	Hypertensive Heart	222	35.8		176	27.5
444-447	Hypertension Without Heart	28	4.5		32	5.0
450-456	Arteries	139	22.4		157	24.5
460-468	Other Circulatory	24	3.9		31	4.8
<b>VIII. RESPIRATORY</b>						
470-527	Total	239	38.5		318	49.7
470-475	Upper Respiratory	5	0.8		4	0.6
480-483	Influenza	22	3.5		59	9.2
490-493	Pneumonia Total	147	23.7		180	28.1
490	Lobar Pneumonia	33	5.3		48	7.5
491	Bronchial Pneumonia	63	10.2		69	10.8
492-493	Other Pneumonia	51	8.2		63	9.8
500-502	Bronchitis	8	1.3		15	2.3
510-527	Other Respiratory	57	9.2		60	9.4
<b>IX. DIGESTIVE</b>						
530-587	Total	242	39.0		231	36.1
530-539	Buccal and Esophagus	2	0.3		1	0.2
540-545	Ulcer, Stomach and Duodenum	42	6.8		46	7.2
550-553	Appendicitis	15	2.4		14	2.2
560-570	Intestinal Obst. and Hernia	57	9.2		53	8.3
571-572	Gastro-enteritis and colitis (over 4 Weeks)	23	3.7		25	3.9
581	Cirrhosis of Liver	37	6.0		44	6.9
584-585	Cholelithiasis and cystitis	30	4.8		21	3.3
	Other Digestive	36	5.8		27	4.2
<b>X. GENITOURINARY</b>						
590-637	Total	170	27.4		115	18.0
590	Acute Nephritis	14	2.3		7	1.1
591-594	Chronic Nephritis and Nephrosis	106	17.1		70	10.9
600-604	Kidney Infection and Calculi	16	2.6		13	2.0
610	Hypertrophy Prostate	24	3.9		20	3.1
	Other Genitourinary	10	1.6		5	0.8
<b>XI. *PUERPERAL</b>						
640-689	Total	8	0.5		3	0.2
640-681	Complications Pregnancy	1	0.1		0	0.0
642	Toxemias Pregnancy	3	0.2		2	0.1
643-672	Hemorrhage Pregnancy	2	0.1		1	0.1
650	Aseptic Abortion	1	0.1		0	0.0
674	Other Pregnancy	1	0.1		0	0.0

TABLE VI (Continued)

Code No.	Cause	Number	1952 Rate	Number	1953 Rate
<b>XII. SKIN AND CELLULAR</b>					
690-716	Total	7	1.1	2	0.3
690-698	Skin and Subcutaneous Tissue	1	0.2	0	0.0
700-716	Other Skin	6	1.0	2	0.3
<b>XIII. BONES AND MOVEMENT</b>					
720-749	Total	9	1.5	9	1.4
720-725	Arthritis	7	1.1	7	1.1
730-738	Osteomyelitis	1	0.2	1	0.2
740-749	Other Muscular	1	0.2	1	0.2
<b>XIV. CONGENITAL MALFORMATION</b>					
750-759	Total	74	11.9	69	10.8
750-759	Congenital Malformation	74	11.9	69	10.8
<b>XV. EARLY INFANCY</b>					
760-776	Total	274	44.2	279	43.6
760-761	Birth Injuries	48	7.7	57	8.9
762	Atelectasis	59	9.5	70	10.9
763-768	Infection, Newborn	13	2.1	18	2.8
770	Hemolytic, Newborn	11	1.8	18	2.8
769, 771	Defined, Newborn	8	1.3	12	1.9
772					
773-776	Immaturity and Other	135	21.8	104	16.3
<b>XVI. SENILITY AND ILL DEFINED</b>					
780-795	Total	225	36.3	218	34.1
794	Senility	73	11.8	58	9.1
780-793	Ill Defined and Unknown	152	24.5	160	25.0
795					
<b>XVII. EXTERNAL CAUSES</b>					
800-999	All External	665	107.3	663	103.6
800-936	Total Accidents	564	96.0	534	83.4
800-802	Railway	19	3.1	18	2.8
810-835	Motor Vehicle	235	37.9	228	35.6
850-858	Water Transport	11	1.8	14	2.2
860-866	Aircraft	12	1.9	8	1.3
845	Other Transport	3	0.5	0	0.0
870-888	Liquid and Solid Poison	6	1.0	1	0.2
890-895	Gas Poison	13	2.1	13	2.0
900-904	Falls	75	12.1	71	11.1
912	Machinery	28	4.5	15	2.3
916	Fire and Explosion	32	5.2	35	5.5
917-918	Hot Substance	1	0.2	0	0.0
919	Firearms	25	4.0	18	2.8
929	Drowning	20	3.2	34	5.3
910	Blow, Falling Object	35	5.7	27	4.2
911	Other Vehicle	1	0.2	1	0.2
913	Cutting and Piercing	4	0.6	0	0.0
914	Electric Current	7	1.1	5	0.8
915	Explosion Pressure Vessel	1	0.2	0	0.0
921	Inhalation or Ingestion of Food	6	1.0	8	1.3
922	Inhalation or Ingest. Other Object	1	0.2	0	0.0
923	Foreign Body	0	0.0	2	0.3
924	Suffocation in Bed Clothes	3	0.5	5	0.8
925	Suffocation, Other	2	0.3	3	0.5
928	Animals	4	0.6	8	1.3
931	Excessive Heat	0	0.0	3	0.5
932	Excessive Cold	6	1.0	1	0.2

1953 Rate



### Deaths: Color or Race

	1952 Number	1952 Percent	1953 Number	1953 Percent
White	5,686	95.2	5,844	95.4
Mexican	20	0.3	16	0.3
Indian	233	3.9	234	3.8
Negro	14	0.2	21	0.3
Yellow	18	0.3	7	0.1
Brown	3		3	

TABLE VIIe

### Montana Marriages

	1952	1953
TOTAL	6,410	6,597
January	323	433
February	382	354
March	395	384
April	395	450
May	544	510
June	787	789
July	578	550
August	692	695
September	594	703
October	553	626
November	584	551
December	583	552

### Type of Marriage

	1952 Number	1952 Percent	1953 Number	1953 Percent
Civil	1,938	30.2	1,974	29.9
Religious	4,240	66.1	4,351	66.0
Declaration	232	3.6	272	4.1

### Race or Color

	Groom	Bride	Groom	Bride
White	6,296	6,293	6,455	6,449
Indian	76	89	91	103
Mexican	26	18	34	33
Black	4	4	11	9
Yellow	5	5	2	0
Brown	3	1	4	3

### Marital Status and Residence

Single	4,528	4,211	4,654	4,355
Divorced	1,584	1,737	1,614	1,772
Widowed	298	462	318	458
Resident	4,872	5,194	5,106	5,415
Non-Resident	1,538	1,216	1,491	1,182

**TABLE VII**  
**Montana Divorces and Annulments**

TOTAL	1952	1953
January	126	163
February	151	141
March	166	169
April	168	172
May	181	172
June	176	166
July	178	173
August	171	180
September	162	156
October	209	162
November	132	155
December	169	177

**Plaintiff**

	1952 Number	1952 Percent	1953 Number	1953 Percent
Husband	512	25.7	613	30.9
Wife	1,463	73.6	1,363	68.6
Other	14	0.7	10	0.5

**Grounds**

	1952 Number	1952 Percent	1953 Number	1953 Percent
Cruelty	1,510	75.9	1,508	75.9
Desertion	225	11.3	240	12.1
Neglect	117	5.9	97	4.9
*Other	49	2.5	45	2.3
*Annulments	88	4.4	96	4.8

\*Includes felony, intemperance, adultery, insanity, physical or mental incapacity, age, coercion and in the Annulments, fraud and bigamy.

**TABLE VII (Continued)**  
**Montana Divorces and Annulments**  
**Minor Children Involved**

TOTAL	1952 Families	1952 Children	1953 Families	1953 Children
1 Child	463	463	466	466
2 Children	304	608	309	618
3 Children	118	354	168	494
4 Children	55	220	46	184
5 Children	23	115	18	90
6 Children	7	42	10	60
7 Children	3	21	2	14
8 Children	—	—	3	24
9 Children	—	—	—	—
10 Children	1	10	1	10
11 Children	1	11	—	—
Not Stated	5	5	—	—

**TABLE VIII**  
**The Population, Births, Deaths, Infant and Maternal Deaths,  
 Communicable Disease and Principal Causes of Death, with Rates  
 by Years 1910-1953. Marriages and Divorces 1943-1953.**

(Birth, death, marriage and divorce rate are per 1,000 of population; infant and maternal deaths per 1,000 live births; all others are per 100,000 population.)

Year	Population	DEATHS		BIRTHS		INFANT MORT.		MATERNAL MORT.		T. B.		SMALLPOX		TYPHOID		DIPH.	
		No.	Rate	No.	Rate	Deaths	Rate	D	R	D	R	D	R	D	R	D	R
1910	376,053	3,999	10.6	6,124	16.2	714	116.6	62	10.1	340	89.9	2	0.5	151	39.9	61	16.1
1911	396,223	4,009	10.1	7,542	19.0	717	95.1	78	10.3	420	106.0	0	0.0	80	20.2	30	7.6
1912	414,184	4,083	9.9	8,133	19.6	660	81.2	75	9.2	468	113.0	2	0.5	57	13.8	13	3.1
1913	432,145	5,033	11.6	8,682	20.1	812	93.5	80	9.2	456	105.5	3	0.7	95	22.0	23	5.3
1914	450,106	4,846	10.8	9,969	22.1	834	83.7	100	10.0	472	104.9	5	1.1	66	14.7	36	8.0
1915	468,067	5,072	10.8	11,132	23.8	816	73.3	91	8.2	530	113.2	1	0.2	57	12.2	21	4.5
1916	486,028	5,791	11.9	11,300	23.2	970	85.8	108	9.6	521	107.2	2	0.4	53	10.9	38	7.8
1917	503,989	6,589	13.1	11,600	23.0	1,090	94.0	143	12.3	549	108.9	6	1.2	79	15.7	40	7.9
1918	521,950	8,985	17.2	11,800	22.6	1,027	87.0	184	15.6	504	96.6	6	1.1	53	10.2	45	8.6
1919	539,911	5,786	10.7	12,017	22.3	962	80.1	141	11.7	480	88.9	9	1.7	39	7.2	41	7.6
1920	548,339	5,289	9.6	11,862	21.6	862	72.7	104	8.8	419	76.3	2	0.4	27	4.9	32	5.8
1921	547,238	4,693	8.6	12,127	22.2	805	66.4	89	7.4	356	65.1	3	0.5	20	3.7	47	8.6
1922	546,137	5,083	9.3	11,060	20.3	763	69.0	86	7.8	383	70.1	2	0.4	21	3.8	61	11.2
1923	545,036	4,893	9.0	10,524	19.3	748	71.1	79	7.5	395	72.5	3	0.6	16	2.9	51	9.4
1924	543,935	4,970	9.1	10,283	18.9	683	66.4	67	6.5	434	79.8	3	0.6	16	2.9	56	10.3
1925	542,834	5,188	9.6	10,302	19.0	726	70.5	83	8.1	396	73.0	0	0.0	24	4.4	34	6.3
1926	541,733	5,395	10.0	10,008	18.5	757	75.6	79	7.9	377	69.6	1	0.2	14	2.6	18	3.3
1927	540,632	5,342	9.9	9,875	18.3	651	65.9	65	6.6	373	69.0	1	0.2	15	2.8	20	3.7
1928	539,531	5,780	10.7	10,072	18.7	612	60.8	75	7.4	357	66.2	4	0.7	16	3.0	20	3.7
1929	538,430	5,748	10.7	10,080	18.7	640	63.5	84	8.3	357	66.3	1	0.2	32	5.9	12	2.2
1930	537,606	5,435	10.1	10,004	18.6	569	57.0	67	6.7	337	62.7	1	0.2	16	3.0	4	0.7
1931	540,337	5,280	9.8	9,638	17.8	583	60.5	70	7.2	329	60.9	0	0.0	12	2.2	7	1.3
1932	542,522	5,294	9.8	9,091	16.8	467	51.4	60	6.6	307	56.6	0	0.0	13	2.4	2	0.4
1933	544,707	5,212	9.6	8,953	16.4	461	51.5	51	5.7	282	51.8	0	0.0	14	2.6	17	3.1
1934	546,892	5,617	10.3	9,949	18.2	532	53.5	57	5.7	265	48.5	0	0.0	17	3.1	10	1.8
1935	549,077	6,291	11.5	10,029	18.3	602	60.0	52	5.2	257	46.8	1	0.2	12	2.2	14	2.5
1936	551,262	6,255	11.3	10,400	18.9	593	57.0	57	5.5	221	40.1	3	0.5	8	1.5	10	1.8
1937	553,447	6,128	11.1	10,248	18.5	518	50.5	38	3.7	241	43.5	2	0.4	11	2.0	10	1.8
1938	555,632	5,684	10.2	10,673	19.2	486	45.5	35	3.3	241	43.4	1	0.2	5	0.9	9	1.4
1939	557,817	5,901	10.6	10,897	19.5	534	49.0	35	3.2	248	44.5	0	0.0	1	0.2	3	0.5

TABLE VIII (Continued)

Year	Population	DEATHS		BIRTHS		INFANT MORT.		MATERNAL MORT.		T. B.		SMALLPOX		TYPHOID		DIPH.	
		No.	Rate	No.	Rate	Deaths	Rate	D	R	D	R	D	R	D	R	D	R
1940	559,456	5,722	10.2	11,468	20.5	527	46.0	39	3.4	231	41.3	0	0.0	3	0.5	6	1.1
1941	530,000	5,673	10.7	11,545	21.8	438	37.9	21	1.8	214	40.4	0	0.0	2	0.4	13	2.5
1942	500,000	5,516	11.0	11,735	23.5	395	33.7	26	2.2	201	40.2	0	0.0	1	0.2	5	1.0
1943	470,033	5,601	11.9	11,407	24.3	442	38.7	20	1.8	206	43.8	0	0.0	4	0.9	5	1.1
1944	487,300	5,662	11.6	10,943	22.5	395	36.1	16	1.5	175	35.9	0	0.0	1	0.2	6	1.2
1945	504,600	5,414	10.7	10,601	21.0	363	34.2	17	1.6	171	33.9	0	0.0	2	0.4	4	0.8
1946	521,900	5,595	10.7	12,858	24.6	448	34.8	18	1.4	164	31.4	0	0.0	2	0.4	5	1.0
1947	539,200	5,760	10.7	15,086	28.0	484	32.1	16	1.1	152	28.2	0	0.0	1	0.2	2	0.4
1948	556,500	5,884	10.6	15,035	27.0	461	30.7	14	0.9	146	26.3	0	0.0	0	0.0	3	0.5
1949	573,800	5,878	10.2	15,366	26.8	457	29.7	14	0.9	109	19.0	0	0.0	1	0.2	3	0.5
1950	591,024	5,817	9.8	15,592	26.4	441	28.3	20	1.3	114	19.3	0	0.0	0	0.0	2	0.3
1951	600,000	5,964	9.9	15,929	26.5	425	26.7	10	0.6	85	14.2	0	0.0	1	0.2	0	0.0
1952	620,000	5,974	9.6	16,479	26.6	448	27.2	8	0.5	79	12.7	0	0.0	1	0.2	1	0.2
1953	640,000	6,125	9.6	16,596	25.9	480	28.9	3	0.2	77	12.0	0	0.0	0	0.0	2	0.3

TABLE VIII (Continued)

Year	SCARLET		MEASLES		W. C.		INFLU.		M'GITIS		POLIO		AUTOS		CANCER		HEART	
	D	R	D	R	D	R	D	R	D	R	D	R	D	R	D	R	D	R
1910	61	16.1	16	4.2	41	10.8	24	6.3	1	0.3	17	4.5	5	1.3	157	41.5	257	67.9
1911	37	9.3	49	12.4	27	6.8	15	3.8	3	0.8	5	1.3	3	0.8	157	39.6	317	80.0
1912	26	6.3	6	1.4	56	13.5	17	4.1	0	0.0	11	2.7	3	0.7	164	39.6	305	73.6
1913	119	27.5	54	12.5	46	10.6	30	6.9	15	3.5	8	1.9	15	3.5	207	47.9	381	88.2
1914	33	7.3	27	6.0	18	4.0	22	4.9	10	2.2	4	0.9	26	5.8	223	49.5	387	86.0
1915	16	3.4	7	1.5	36	7.7	41	8.8	7	1.5	1	0.2	31	6.6	223	47.6	407	87.0
1916	19	3.9	36	7.4	79	16.3	58	11.9	20	4.1	24	4.9	42	8.6	247	50.8	469	96.5
1917	85	16.9	46	1.9	43	8.5	43	8.5	6	1.2	8	1.6	59	11.7	278	55.2	477	94.6
1918	71	13.6	18	3.4	64	12.3	2,654	508.5	16	3.1	7	1.3	64	12.3	279	53.5	476	91.2
1919	57	10.6	16	3.0	13	2.4	687	127.2	15	2.8	3	0.6	44	8.1	302	55.9	448	83.0
1920	22	4.0	27	4.9	51	9.3	304	55.4	15	2.7	5	0.9	45	8.2	282	51.4	428	78.0
1921	10	1.8	35	6.4	69	12.6	49	9.0	7	1.3	2	0.4	48	8.8	315	57.6	523	95.6
1922	19	3.5	0	0.0	8	1.5	239	43.8	8	1.5	7	1.3	48	8.8	343	62.8	595	108.9
1923	17	3.1	19	3.5	23	4.2	158	29.0	7	1.3	6	1.1	49	9.0	333	61.1	575	105.5
1924	32	5.9	73	13.4	26	4.8	64	11.8	5	0.9	23	4.2	70	12.9	363	66.7	645	118.6
1925	21	3.9	5	0.9	63	11.6	109	20.1	5	0.9	6	1.1	98	18.1	379	69.8	672	123.8
1926	25	4.6	21	3.9	45	8.3	241	44.5	20	3.7	5	0.9	101	18.6	401	74.0	695	128.3
1927	32	5.9	30	5.5	15	2.8	147	27.2	66	12.2	4	0.7	77	14.2	414	76.6	815	150.8
1928	10	1.9	8	1.5	49	9.1	366	67.8	65	12.0	10	1.9	139	25.8	449	83.2	864	160.1
1929	16	3.0	46	8.5	21	3.9	212	39.4	60	11.1	0	0.0	126	23.4	467	86.7	809	150.3
1930	15	2.8	12	2.2	16	3.0	102	19.0	22	4.1	6	1.1	106	19.7	424	78.9	759	141.2
1931	11	2.3	3	0.5	46	8.5	152	28.1	13	2.4	15	2.8	127	23.5	420	77.7	915	169.3
1932	7	1.3	12	2.2	22	4.1	190	25.0	5	0.9	4	0.7	98	18.1	513	94.6	1,065	196.3
1933	12	2.2	15	2.8	15	2.8	173	31.7	3	0.6	2	0.4	119	21.8	508	93.3	1,087	199.6
1934	11	2.0	30	5.5	24	4.4	122	22.3	7	1.3	14	2.6	209	38.2	477	87.2	1,117	204.2
1935	22	4.0	49	8.9	22	4.0	173	31.5	15	2.7	1	0.2	161	29.3	528	96.2	1,299	236.6
1936	44	8.0	3	0.5	16	2.9	101	18.3	23	4.2	5	0.9	174	31.6	567	102.9	1,248	226.4
1937	12	2.2	2	0.4	14	2.5	244	44.1	7	1.3	6	1.1	177	32.0	566	102.3	1,395	252.1
1938	9	1.6	12	2.2	47	8.5	81	14.6	9	1.6	3	0.5	143	25.7	557	100.2	1,308	235.4
1939	8	1.4	16	2.9	16	2.9	99	17.7	4	0.7	1	0.2	149	26.7	643	115.3	1,486	266.4
1940	7	1.3	5	0.9	5	0.9	77	13.8	6	1.1	7	1.3	154	27.5	640	114.4	1,447	258.7
1941	9	1.7	1	0.2	6	1.1	90	17.0	5	0.9	9	1.7	182	34.3	644	121.5	1,485	280.2
1942	3	0.6	0	0.0	12	2.4	26	5.2	7	1.4	0	0.0	105	21.0	643	128.6	1,577	315.4
1943	3	0.6	6	1.3	18	3.8	58	12.3	5	1.1	10	2.1	87	18.5	613	130.4	1,564	332.8
1944	2	0.4	13	2.7	10	2.1	50	10.3	3	0.6	6	1.2	106	21.8	681	139.7	1,660	340.6
1945	1	0.2	1	0.2	2	0.4	47	9.3	3	0.6	10	2.0	118	23.4	658	130.4	1,603	317.7
1946	0	0.0	3	0.6	2	0.4	25	4.8	3	0.6	5	1.0	166	31.8	662	126.8	1,629	312.1

TABLE VIII (Continued)

Year	SCARLET D R		MEASLES D R		W. C. D R		INFLU. D R		M'GITIS D R		POLIO D R		AUTOS D R		CANCER D R		HEART D R	
1947	0	0.0	13	2.4	6	1.1	33	6.1	3	0.6	4	0.7	157	29.1	712	132.0	1,690	313.4
1948	0	0.0	12	2.2	6	1.1	13	2.3	1	0.2	6	1.1	165	20.6	724	130.1	1,803	324.0
1949	4	0.7	3	0.5	2	0.3	13	2.3	3	0.5	13	2.3	152	26.5	729	127.1	2,002	348.9
1950	0	0.0	0	0.0	10	1.7	23	3.9	1	0.2	3	0.5	190	32.1	733	124.0	1,957	331.1
1951	0	0.0	9	1.5	1	0.2	30	5.0	5	0.8	6	1.0	187	31.2	726	121.0	2,159	359.8
1952	0	0.0	4	0.6	1	0.2	22	3.5	4	0.6	8	1.3	235	37.9	798	128.7	2,032	327.7
1953	1	0.2	4	0.6	4	0.6	59	9.2	2	0.3	14	2.2	228	35.6	768	120.0	2,164	338.1

TABLE VIII (Continued)

Year	NEPH. D R		PNEUM'NIA D R		SUICIDE D R		HOMICIDE D R		ACCIDENTS D R		APOPLEXY D R		ALCOHOL D R		ALL. COM. D R	
1910	222	58.7	282	74.6	81	21.4	37	9.8	514	135.9	112	29.6	56	14.7	800	211.5
1911	204	51.5	354	89.3	109	27.5	51	12.9	447	112.8	126	31.8	40	10.1	725	183.0
1912	246	59.4	387	93.4	83	20.0	59	14.2	475	114.7	155	37.4	63	15.2	711	171.7
1913	247	57.2	508	117.6	115	26.6	44	10.2	564	130.5	152	35.2	74	17.1	921	213.1
1914	249	55.4	464	103.1	125	27.8	58	12.9	498	110.6	170	37.8	66	14.6	777	172.6
1915	339	72.4	511	109.2	103	22.0	53	11.3	556	118.8	196	41.9	66	14.1	790	168.8
1916	359	73.9	536	110.3	113	23.2	86	17.7	695	143.0	210	43.2	86	17.7	949	195.3
1917	358	71.0	690	136.9	113	22.4	92	18.3	870	172.6	212	42.1	124	24.6	1,032	204.8
1918	322	61.7	1,298	248.7	97	18.6	58	11.1	625	119.7	213	40.8	60	11.5	3,536	677.5
1919	265	49.1	530	98.2	86	15.9	43	8.0	509	94.3	243	45.0	10	1.9	1,442	267.1
1920	273	49.7	576	104.9	86	15.7	46	8.4	473	86.2	246	44.8	10	1.8	924	168.3
1921	279	51.0	412	75.3	94	17.2	41	7.5	388	70.9	242	44.2	19	3.4	689	125.9
1922	298	54.6	482	88.3	88	16.1	42	7.7	433	79.3	255	46.7	22	4.0	830	152.0
1923	267	49.0	399	73.2	77	14.1	26	4.8	470	86.2	263	48.3	25	4.6	815	149.5
1924	295	54.2	364	66.9	79	14.5	37	6.8	519	95.4	272	50.0	15	2.8	806	148.2
1925	301	55.5	437	80.5	102	18.8	51	9.4	505	93.0	322	59.3	41	7.6	753	138.7
1926	236	43.6	501	92.5	92	17.0	45	8.3	477	88.0	327	60.4	27	5.0	862	159.1
1927	325	60.1	372	68.8	113	20.9	37	6.8	506	93.6	290	53.6	58	10.7	795	147.1
1928	333	61.7	458	84.9	110	20.4	44	8.2	568	105.3	336	62.3	48	8.9	997	184.8
1929	395	73.4	439	81.5	116	21.5	54	10.0	526	97.7	320	59.4	60	11.1	863	160.3
1930	395	73.5	425	79.1	136	25.3	57	10.6	498	92.6	357	66.4	69	12.8	635	118.1
1931	336	62.2	384	71.1	126	23.1	39	7.2	510	94.4	346	64.0	33	6.1	683	126.4
1932	348	64.1	348	64.1	125	23.0	45	8.3	442	81.5	358	66.0	15	2.8	658	121.3
1933	315	57.8	321	58.9	114	20.9	30	5.5	508	93.3	354	65.0	24	4.4	611	112.2
1934	350	64.0	416	76.1	104	19.0	39	7.1	576	105.3	379	69.3	20	3.7	601	109.9
1935	355	64.7	674	122.8	96	17.5	34	6.2	552	100.5	450	82.0	14	2.5	689	125.5
1936	347	62.9	631	114.5	102	18.5	26	4.7	660	119.7	447	81.1	25	4.5	524	95.1
1937	305	55.1	528	95.4	101	18.2	27	4.9	599	108.2	416	75.2	32	5.8	646	116.7
1938	314	56.5	355	63.9	103	18.5	26	4.7	587	105.6	437	78.6	27	4.9	514	92.5
1939	327	58.6	310	55.6	106	19.0	27	4.8	531	95.2	438	78.5	23	4.1	528	94.7
1940	295	52.7	321	57.4	120	21.5	29	5.2	539	96.3	452	80.8	41	7.3	434	77.6
1941	272	51.3	262	49.4	93	17.5	18	3.4	548	103.4	486	91.7	19	3.6	452	85.3
1942	284	56.8	235	47.0	98	19.6	17	3.4	468	93.6	477	95.4	16	3.2	360	72.0
1943	271	57.7	248	52.8	68	14.5	15	3.2	580	123.4	453	96.4	12	2.6	398	84.7
1944	292	59.9	250	51.3	53	10.9	13	2.7	494	101.4	539	110.6	7	1.4	358	73.5
1945	279	55.3	196	38.8	79	15.7	19	3.8	498	98.7	489	96.9	13	2.6	307	60.8

TABLE VIII (Continued)

Year	NEPH. D R		PNEUM'NIA D R		SUICIDE D R		HOMICIDE D R		ACCIDENTS D R		APOPLEXY D R		ALCOHOL D R		ALL. COM. D R	
1946	276	52.9	235	45.0	98	18.8	22	4.2	517	99.1	490	93.9	15	2.9	267	51.2
1947	266	49.3	223	41.4	96	17.8	14	2.6	537	100.0	495	91.8	19	3.5	256	47.5
1948	247	44.4	189	34.0	88	15.8	15	2.7	575	103.3	581	104.4	14	2.5	336	60.4
1949	129	22.5	144	25.1	89	15.5	21	3.7	552	96.2	601	104.7	17	3.0	201	35.0
1950	80	13.5	157	26.6	123	20.8	24	3.7	545	92.2	619	104.7	14	2.4	182	30.8
1951	85	14.2	121	20.2	85	14.2	15	2.5	525	87.5	618	103.0	17	2.8	159	26.5
1952	120	17.1	147	23.7	84	13.5	17	2.7	564	91.0	651	105.0	13	2.1	134	21.6
1953	77	12.0	180	28.1	106	16.6	23	3.6	534	83.4	649	101.4	17	2.7	150	23.4

TABLE VIII (Continued)

Year	DIABETES D Rate		MARRIAGES No. Rate		DIVORCES No. Rate	
1940	109	19.5				
1941	110	20.8				
1942	108	21.6				
1943	116	24.7	(7,506)	16.0	(7,562)	3.7
1944	126	25.9	6,433	13.2	1,745	3.6
1945	129	25.6	8,147	16.1	2,380	4.7
1946	137	26.3	12,974	24.9	3,212	6.2
1947	130	24.1	9,769	18.1	2,439	4.5
1948	118	21.2	7,131	12.8	2,090	3.8
1949	102	17.8	6,981	12.2	1,995	3.5
1950	49	8.3	7,235	12.2	1,951	3.3
1951	58	9.7	6,307	10.5	1,837	3.1
1952	83	13.4	6,410	10.3	1,989	3.2
1953	73	11.4	6,597	10.3	1,986	3.1

" . . . WE POINT WITH PRIDE TO THE VALUE OF OUR CATTLE, OUR SHEEP, OUR HORSES, OUR MINES, ETC. WHY NOT PLACE A VALUE ON OUR PEOPLE? WE HAVE DONE THIS IN A WAY, FOR WE HAVE APPROPRIATED A CERTAIN AMOUNT OF MONEY FOR THE PRESERVATION OF THE HEALTH OF OUR PEOPLE AND FOR THE PRESERVATION OF OUR CATTLE, SHEEP AND HORSES. ACCORDING TO THE APPROPRIATIONS THUS MADE, THE VALUE OF THE PEOPLE IS PLACED AT ABOUT 1-88 THAT OF THE VALUE OF THE LOWER ANIMALS. YES, WE HAVE DONE MORE THAN THIS, WE HAVE MADE AN APPROPRIATION FOR THE PROTECTION OF THE HEALTH OF OUR FISH AND GAME AND THEREBY DECLARE THAT OUR FISH AND GAME ARE WORTH 7 1-2 TIMES AS MUCH AS OUR PEOPLE.

"DO THE PEOPLE OF MONTANA BELIEVE THIS? BUT THIS IS THE ESTIMATE MADE BY OUR DULY ELECTED REPRESENTATIVES.

"THE PEOPLE OF MONTANA ARE JUST AS GOOD AS ANY BOSTONIAN THAT EVER LIVED. NOT A CITIZEN OF THIS STATE WOULD PERMIT AN INSINUATION TO THE CONTRARY; WE HAVE SIMPLY FAILED TO REALIZE THAT THERE IS A MONETARY VALUE TO LIFE, THAT BY PROPER PRE-CAUTIONS MANY OF THE LIVES NOW LOST CAN BE SAVED . . ."

THOMAS D. TUTTLE, M.D., BILLINGS  
SECRETARY, STATE BOARD OF HEALTH  
DECEMBER 1, 1906

"TO PASS A LAW SAYING THAT IMPURE FOODS SHALL NOT BE OFFERED FOR SALE IN THE STATE IS ALL FOOLISHNESS, UNLESS MEANS ARE PROVIDED TO DETERMINE WHAT ARE PURE AND WHAT ARE IMPURE FOODS, AND UNLESS OFFICERS ARE SECURED TO SEE THAT FOODS PRONOUNCED IMPURE ARE NOT OFFERED FOR SALE. THIS REQUIRES MONEY. UNPAID OFFICERS ARE WORTHLESS; THEY ARE WORSE THAN NOTHING."

THOMAS D. TUTTLE, M.D., BILLINGS  
SECRETARY, STATE BOARD OF HEALTH  
NOVEMBER 30, 1904

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OF HEALTH

JULY 1, 1952-  
JUNE 30, 1954

VITAL STATISTICS  
FOR 1952-1953

"I HAVE KNOWN WELLS FOR THE LENGTH OF SIX BLOCKS ON ONE STREET TO BE INFECTED AT ONE TIME AND CASES OF TYPHOID IN EVERY BLOCK, AND YET IT HAS BEEN VERY DIFFICULT TO CONVINCE PEOPLE OF THE DANGER OF DRINKING UNBOILED SUPERFICIAL WELL WATER. 'OUR WATER IS THE FINEST DRINKING WATER IN TOWN AND CANNOT POSSIBLY BE IMPURE,' IS A FREQUENT ASSERTION, AND THE CLEARNESS AND TASTE OF THE WATER IS HELD OUT AS PROOF POSITIVE."

L. C. BRUNING, M.D., MILES CITY  
CUSTER COUNTY HEALTH OFFICER  
NOVEMBER, 1904